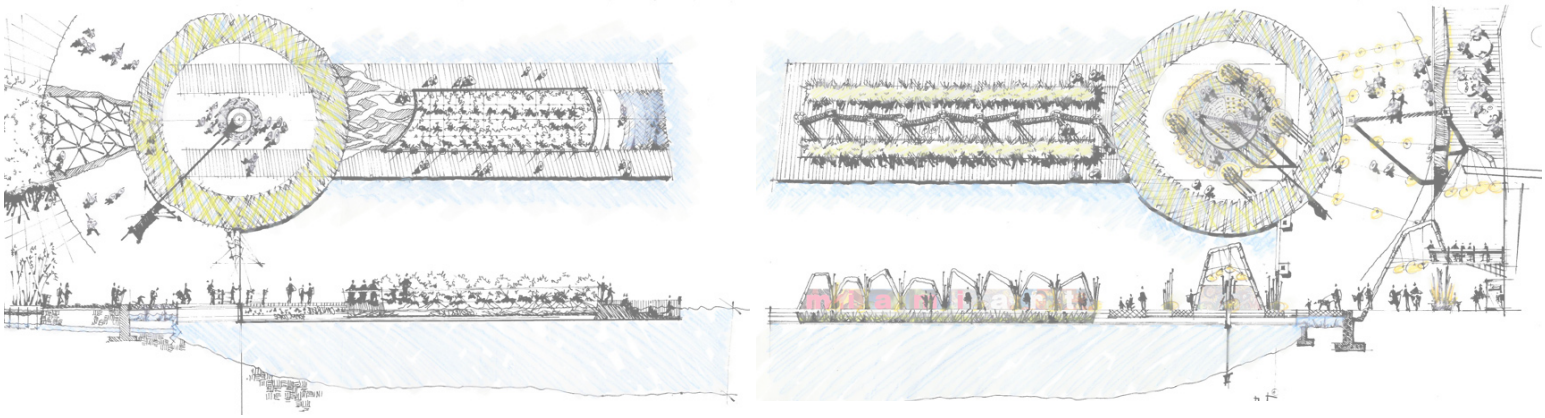
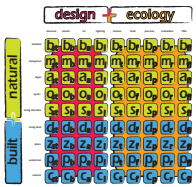


a new vision for the miami riverfront

designing the downtown riverwalk of miami, fl



a new vision for the miami riverfront

designing the downtown riverwalk of miami, fl

Tyler Kirages

Landscape Architectural Thesis, Spring 2011
College of Architecture and Planning
Ball State University

Simon Bussiere, Advisor
Chris Marlow, Studio Professor
John Motloch, Studio Professor
Burcu Yigit-Turan, Studio Professor

abstract:

[revitalize]

This proposal will cover research, analysis, and design of the new vision for the Miami Riverfront. This comprehensive venture in landscape architectural design is an effort to socially, economically, and ecologically revitalize the current urban void of the Miami River. This project is innovative in a number of ways: [1]looking at how the pedestrian will approach, circulate, and interact with an urban river. [2]utilizing an ecological network of urban forests and living docks to mitigate pollution and improve the overall health of the Miami River and surrounding urban core. [3]creating an evolving riverfront that attracts and provides entertainment for visitors of surrounding communities and tourists alike. The design process illustrated throughout this proposal culminates in the urban revitalization of the Miami Riverfront

acknowledgements:

I would like to thank first and foremost my family for their support throughout my college career at Ball State University; my mother Tami, father Jim, and little bro Drew. Also, these years in the landscape architecture program would not have been the same without my fellow classmates. We've grown into a family of our own, while challenging each other every step along the way; and the end result: in my belief, the best class to graduate from this program in many years. I'd also like to acknowledge the faculty for their contribution to my growth as a student and professional over the last 5 years. All mentioned above, and many not mentioned, have helped me to get to this point in my career, and have given me the confidence to pursue any adventure that may exist beyond this project.

list of figures:

table of contents:

introduction:

The Miami River and surrounding urban core is an area with great potential, but currently create an urban void in a city that is otherwise alive and vibrant with activity, culture, and foreign flair.

problem statement:

and sub-problems

The purpose of this thesis research is to revitalize the Miami Riverfront and unite the urban activity of Downtown Miami. It will examine the opportunities to make a clear pedestrian connection between Bayfront Park and Brickell Village. Through engaging riverfront design, opportunities will be examined for green infrastructure and design to have a positive impact on the Miami Riverfront. Site specific design for purposes of public activity and entertainment will also be included as part of the revitalization.

What factors of urban landscape architecture design attract pedestrians to engage in a walking experience between destinations; especially considering the crossing of an urban river? 1

What are modern, sustainable, interactive strategies for green infrastructure design along urban riverfronts similar to Miami Riverfront? 2

How can specific, pedestrian-oriented site design along an urban riverfront connect into the greater network of parks, public activity, and entertainment districts of an urban core such as Miami? 3

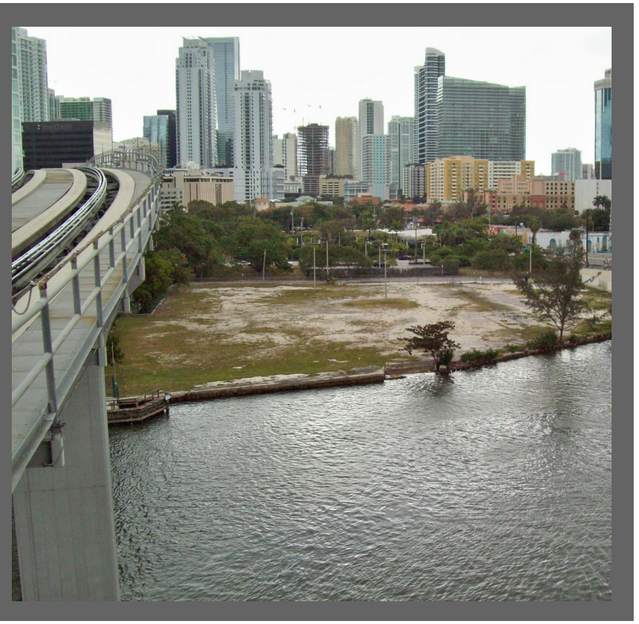
What are specific areas of the Miami Riverfront suitable for design for public activity and entertainment? 4

What is, and how can the history, culture, and current urban functions of the Miami Riverfront area influence site design; specifically through creation of historic and/or cultural trails? 5

engage

activate

revitalize



figure[1.1]

Downtown Miami is mostly, an area of great urban activity. Areas such as Bayside, Bayfront Park, and Brickell Village offer up numerous restaurants and vendors; fun for both the local resident or visiting tourist. The Miami River is such a great asset to the city; mainly for the opportunity that it provides to the cargo industry, however, it is being highly underutilized as an aesthetic public pedestrian space. Along the Miami River; starting in Bayfront Park and continuing inland, there is a pieced-together, sporadic development of riverfront walkway. Pieces of this walkway feel privatized to large apartment complexes; others are extremely uninviting, dangerous, and have not been maintained for years. The purpose of this research, engaging riverfront design, and more site specific strategies is to revitalize and create more areas of public activity and entertainment between Bayfront Park and Brickell Village. The river is currently such a break between these two areas, making a revitalizing effort to connect both of them, important to anyone visiting or living in the urban core of Miami. Already existing are a couple of public riverfront park areas; however, it will only benefit the river and the community to consider other green infrastructure strategies along the riverfront, as well as pedestrian corridors. These strategies will provide more active green space and keep the river healthy at the same time; all while completing a community, cultural, and economic revitalization of Downtown Miami.

project significance:

background information and research:

figure[2.1]

These sections take an in depth look at topics of related literature that relate to individual goals of this project. This research will help take precedents, history, and local culture, and evolve this knowledge into a practical design for the Miami Riverfront.

review of literature:

Pedestrians, Corridors and Destinations

Engaging the pedestrian in the streetscape can rely heavily on the relationship between the architectural and natural while walking along a path. Shade is a key aspect that plays this important role for cities designing green. Photovoltaic panels obtain double functions when on awnings to collect power and shade the pedestrian (Beatley 49). The journey from Bayfront Park to Brickell Village in Miami does not currently employ any innovative uses of solar power collection. It will be necessary to implement ideas of PV awnings like in Kogarah Town Square, Sydney, along with a heavy focus of planting more street trees into the Miami green urban-scape. This will create the necessary engaging pedestrian corridor to and from, and along the Miami Riverfront.

The city of Portland is taking eco-roofs to a new level of conceptual habitats. These ideas can provide the Miami Riverfront and streetscape with conceptual ideas of creating new wildlife ecologies above the ground level. In Portland, roofs are a great place to put dry riverbed habitats. These rooftop habitats can bring in many species of birds; wildlife that could attract pedestrians for the sheer wildlife experience (Chalmers). The Miami corridor and riverfront could then create an abstract idea of an entire eco-roof system that follows the pedestrian path and mimics a riverbed habitat. This ‘river above ground’ would be the ultimate ‘green’ strategy that could draw visitors into the corridor, and provide ample attraction to move people from destination to destination, even crossing the urban river. Public art projects will be an interesting way to get the community involved and participate more along the pedestrian corridor and urban riverfront. San Diego began a project in 2003 called ‘Urban Trees: Art on the San Diego Waterfront’. These installations have proven to engage and attract the interest of pedestrians jogging or strolling along the waterfront (Batterson). Public art along the Miami Riverfront will refer back to the historic and cultural heritage of the site itself; be able to involve local artists and even host an arts walk along the Miami River to attract visitors to a new annual event

Green Infrastructure and Urban Riverfronts

The living dock is a new sustainable approach for riverfront water management. Along the Intracoastal Waterway in West Palm Beach there has been a five hectare development that involves sustainable and interactive infrastructure development. Many surfaces are covered by sustainably harvested Ipe wood planks, while the core structure of the living dock is comprised of concrete over a foam core. Underwater boxes contain layers of geotextiles which hold soil for native mangroves and spartina grasses to grow. Also around some boxes are discarded oyster shells; intended to spur natural oyster growth (Schäfer 14). These innovative design elements are directly translatable to the Miami

Riverfront, as both of these sites lie along the Intracoastal Waterway less than one hour apart. Further elements in this waterfront infrastructure include stepped tidal gardens for further filtration, and the habitats that can be created both above and below water for wildlife. These techniques, on the Miami River, will create an innovative habitat for wildlife and people to share which will take the visitor out of the bustle of the city and into the sustainable environment that historically thrived along the banks of the Miami River. One of the most important strategies for streets of green infrastructure is to educate the public about the project. Incorporating graphics into project sites such as greenways and parks is the easiest way to raise public awareness about the history or unique features of a site. Other strategies to educate will lie in site details such as art in railings, sculpture, and pavers. Nashville’s Deaderick Green includes signage that speaks to rainwater harvesting strategies, as well as all LEED qualified strategies on the street (Hawkins Partners). Strategies for the Miami Riverfront should speak to the pedestrian about the importance of controlling the amount and quality of water that enters the river itself. It will need to explain the opportunities of living docks and the importance of reintroducing native vegetation that once flourished on the banks of the riverfront (Hawkins Partners, Inc).

review of literature:

Riverfront Site Design and Urban Framework

Riverfront design needs to recognize the area at hand as a human realm. Barriers to consider while designing include physical, social, and economic areas. "Good riverfront designs consider the needs of all neighborhoods, ages, and cultures in the community. They allow community members to experience the river up close. In turn, this physical and visual access helps create lively, diverse places that encourage a sense of community and appreciation for nature (Otto 37)." The Riverfront Plaza in Hartford Connecticut is a prime example of a riverfront design reaching into a city to allow pedestrian access by bridging an adjacent interstate (Otto 30-40). The Miami Riverfront induces a similar opportunity to create a bridge over Biscayne Boulevard to connect to office plazas and commercial streets of the urban core. This connection could be in direct relation to a pedestrian corridor created to and from Bayfront Park and Brickell Village, a corridor which considers all community members and activities as mentioned above.

The Peoria, Illinois riverfront is a notable precedent to observe as an entertainment and arts district. Multiple uses include a gateway building which serves as a place to hold corporate or other events in need of a waterfront venue. Parks for festivals are a necessity, and in the context of the Miami Riverfront, there are two existing, cultural parks that should connect into this new piece of the network. Other uses include contemporary art museums, interactive fountains, marina access, recreation facilities, trails, riverfront markets, hotels, restaurants and of course, the all important views of the river. The Miami Riverfront should consider all potentially successful uses, but connect them through an innovative and integrative site design. Essentially the grid of necessary activities will connect to current uses in the urban core, attracting people to the site and giving them reason to occupy the area (Peoria Riverfront Association).

miami river history:

Origination, Characteristics, and Development

The banks of the Miami River have been a popular spot since the time of initial Indian settlements. The River should be, and has been seen as a place to live, worship, play, and trade by the aesthetics of rushing water and sea life. The founding of Miami as a city was originally by Indian burial mounds along the banks of the Miami River; which has ever since, been the livelihood of Miami's trade industry. This industry in contemporary times though, could stand to be celebrated like it was in the past. The artery that is the River runs 5.5 miles from Miami International Airport to Biscayne Bay. Historically, the river would have been used as easy means of transportation along these few miles of waterway, however, this is now neglected and traveling is much different. The development into a working river has provided the chance for exotic, aesthetic, and vital urban waterfront development, which is claimed to have no parallel in America; however, this is an arguable point. At certain points in history, the Miami River may have leant a design aesthetic to be marveled at, but physical and cultural deterioration leaves the visitor wanting more. (MRCommission, About the River)

Settlement

Evidence exists for early Native American settlement about 2,000 years ago. This historic evidence is located on a site at the mouth of the Miami River. What is known as the Miami Circle is simply a preserved arrangement of limestone from the Tequesta Indian village settlement that is not celebrated for its historical value as it should be. Trading posts switched hands along the Miami River for three centuries until a plantation became a permanent existence in the mid-late 1800's. Occupied as Fort Dallas during the Seminole Wars, this plantation now has a dedicated portion of the Riverwalk know as Fort Dallas Park. This, again, is an area that is not properly celebrated, as it has deteriorated and been forgotten. The area has potential to be recognized as it once was; as a central, critical hub of the Miami community when it was the William English plantation. (MRCommission, Miami River History)

more history:

Urban Functions and Areas

Much development has occurred on the banks of the Miami River since the first ground was broken on the Royal Palm Hotel in the late 1890's. This has led to some distinct areas of urban development along the downtown area, to the middle river, and further inland to the upper river. Brickell Point is now a massive grouping of condominiums, residences, offices, and high-class hotels at the mouth of the river. As the river enters into Biscayne Bay in the Brickell area, much of the land use is dedicated to high rise buildings; which has a much more dense feeling than other parts of the downtown core. Moving further inland there are a series of critical artery crossings; the few bridges that connect the downtown core to the Brickell Village area of restaurants and offices. These river crossings provide opportunities for celebratory areas; an urban function that is currently overlooked (MR Commission, Miami River Tour).

Moving west along the river is an experience of changing urban functions and aesthetics. At the mouth luxury and high-rise dominate the skyline, while not much further west is the area dubbed Fort Dallas Park. It claims itself as one of the shining points of the Miami River's Greenways plan as it boasts the old river house from 1906. The U.S. Customs building is a prominent architectural structure on the south bank. Past the Miami Avenue Bridge, restaurants such as the Big Fish play a role on the riverfront. Further west from these functions is where the maritime industry makes a bigger impression on riverfront design. These findings leave the window of opportunity wide open for new development. The restaurant industry should be more alive along the Miami River and could include an extension of Brickell Village. Architecturally, new riverfront development will need to be diverse and flexible to flow from modern high rise structures to early 20th century river house architecture (MR Commission, Miami River Tour).

Industry

The history and current functions of the Miami River supporting the cargo industry is overlooked. It has been built to a $4 billion dollar a year industry; the fifth largest seaport in America. While all 32 private terminals are outside of the "Lower River" of the downtown core, part of this industry should be recognized where people actually occupy the riverfront on a daily basis. Multiple fisheries are located along the banks of the Middle and Upper Miami River, which provide a great opportunity to host a seafood market on the boardwalk. Providing public places such as plazas and arcades will allow sales to happen directly, boosting the economy and creating a community image that is supported by the local industry (MR Commission, Miami River History).

River Deterioration and Pollution

The rapids of the Miami River were once created by the natural 6 foot ridge that brought water from the Everglades. When the Miami Canal was built, the natural rapids were brought to a halt, and water level critically dropped. Stability had also been lost, and Everglades muck slowly began intruding on the clear waters of the river. Now the 5.5 mile navigable waterway, the river has dealt with pollution by saltwater intrusion, trash, and seepage from local airports, hospitals, and industrial sites (Miami River History). Much of this has been studied, with proposed solutions by the Miami River Commission (Stormwater). The Miami River should be recognized for the natural beauty that it once had, even if it is conceptual representation through strategic design. The fact is that much more consideration of storm water and pollution is on the horizon. New development along the river will keep this in mind by looking at the historical beauty of the river, and looking forward towards contemporary solutions. (MR Commission, Miami River History)

miami culture:

Latin American Population

The Latin American population in Miami, throughout the 60's and 70's was a gradual influx. With a majority of the Cuban ethnicity entering in these times, the city was accustomed to it. However, the early 1980's is when Miami would essentially become known as the Latin American capital of the United States. By 1983 the Latin population was over 780,000, and by the end of the 1980's, Miami would see in excess of 1 million people of Latin American ethnicity; mostly Cuban even though other immigrants were coming from other countries at this time as well (Allman 46-57).

The Spanish Language

The Spanish language in Miami has been an evolutionary topic, generally speaking. It is important in the politics of such a Latin American influenced city, as well as education, daily life, art, and source of pride. It is important for the young people of these communities to master essentially a bilingual background. However, it has been an embarrassing topic for the young Cuban-Americans that retain a relatively limited and poor quality of Spanish; finding themselves incapable of properly conversing with other youth and adults, especially when moving to other cities. As part of the solution, courses are now offered for native speakers at colleges in Miami (Allman 25-45).

Foreign Décor

There is an appeal to the city of Miami to the rest of the country. There is a color of "foreign" décor throughout the city that marks the drama of Miami's Latinization. There is an essence of something exotic, unique, cultural which unfortunately has already seen its climax. Now the city has been in the process of over 20 years now of the new drama that is; the "Americanization of Miami's Latinos" (Allman 345). The generation of Cuban artists in Miami even seems to be influenced by America. The artistic expression of Emilio Falero's 1983 painting entitled "Findings", speaks to the American way of bulldozing nature and culture to put up the strips malls of the 80's and 90's (Allman 57-60).

Artistic Influence

The way that culture will be remembered in Miami is through the architecture and landscape architecture of today. There is evidence in buildings such as the Metro-Dade Cultural Center that influencing the new is a way to remember the old. The true culture is being stripped away as Cuban motifs flake off the sides of Miami's buildings. (Allman) Reintroducing these types of murals will be the most influential means of remembering. The 'designer' of culture in Miami must look back to the real Cuban artists that trained in Hispanic tradition; Falero, Velazquez, Macia, Tasobares, and Vega, along with many others. (Allman 62-65)

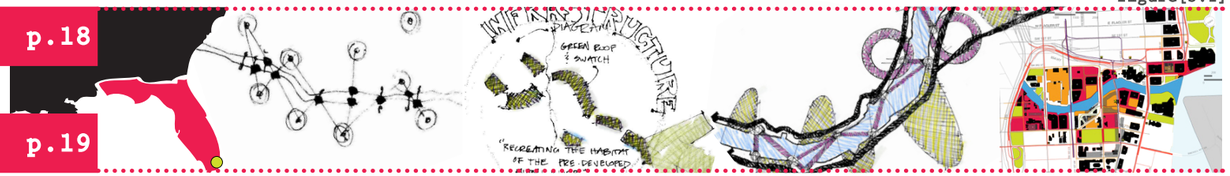
Design Thoughts

Site design may now be influenced by the multitude of information presented in this research. In contemporary times, it is almost unfathomable to be able to picture the forested banks of the Miami River that existed 2,000 years ago with the Tequesta Indians. Symbolic forms of design lie within the history of the banks of this river. People deserve to know the natural beauty of what once existed on this site. This may be in the form of representing the rapids that once thrived at the head of the river, or even re-introducing native vegetation in large quantities. Art will be able to play an influential part in the cultural aspects of site design. An Americanization of the Cuban Heritage has been an effect that the local Latin culture does not take pride in, but it has been inevitable because of the desensitization and lack of cultural education for younger generations. On a site level, re-instituting more opportunity for public art with a cultural influence will be an opportunity to attract the community, as well as contribute to a piece of proposing a downtown cultural trail.

the design problem:

A more in-depth look at the basis behind the revitalization of the Miami Riverfront. 4 specific goals and associated design program that develop the framework of the project. Inventory, analysis and case studies that show process of translating into design process

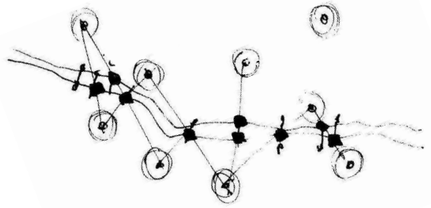
figure[3.1]



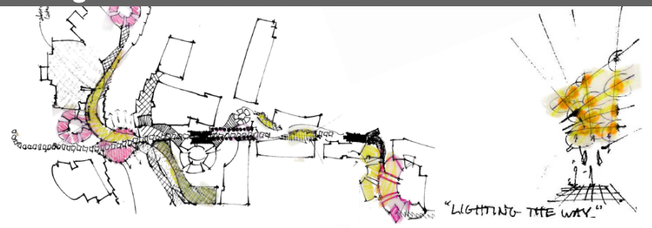
[site] [network] [structure] [ecology] [inventory]

goals:

1 create a clear pedestrian network

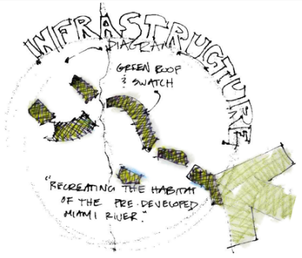


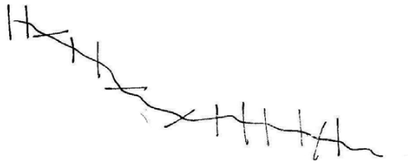
2 encourage riverfront and water interaction



3 reinstate community interest and cultural pride

4 mitigate and filter pollution:ecological design





figure[3.2]

program:

1

a. Establish a logical route along the riverfront that considers varying the journey experience through topographical and contemporary design

b. Establish a complete pedestrian Riverwalk along the extent of the navigable waterway

c. Extend the mixed use/retail feeling of Mary Brickell Village to, and along sections of the river.

d. Decentralize parking structures to eliminate vehicular interruption

2

a. Design spaces for active recreation along the river that also function as a means for pollutant filtration

b. Use physical and visual interactive design strategies to educate the visitor about the sustainable design in which they are immersed.

c. Innovative design will create pedestrian crossings and riverfront elements to allow visitors to physically reach the water.

3

a. Design areas for display of community art along the Miami River.

b. Design spaces to educate about the cultural heritage of Miami as well as the history of the natural environment of the Miami River.

c. Incorporate plazas and park space to host large community and cultural events.

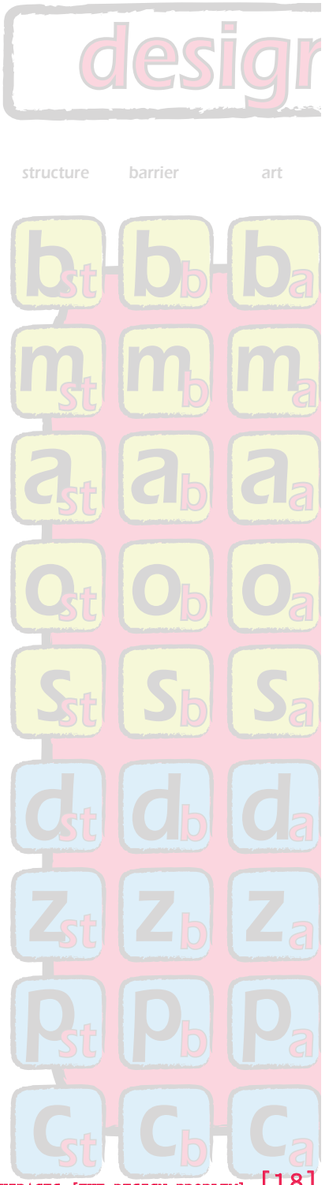
4

a. Develop habitats of algae growth to contribute to carbon offsetting.

b. Establish urban forests to mitigate urban pollution and provide green barriers

c. Design living shorelines and docks as an opportunity to house oyster beds, mangroves, and other vegetation to support water filtration

d. Open green space design will allow active recreation an contribute to the continuous green network along the river.

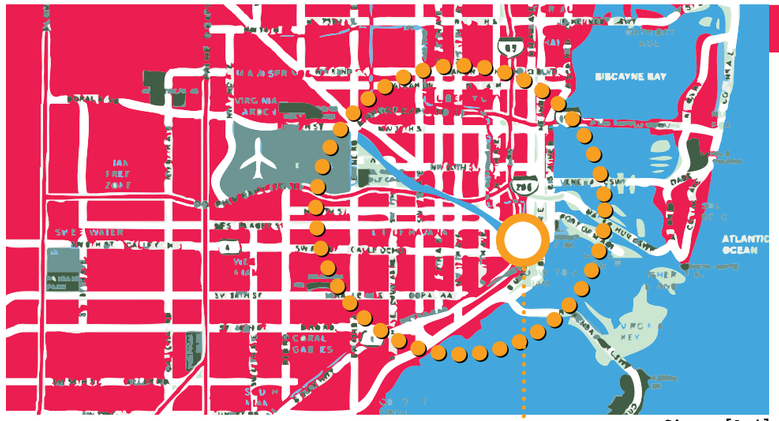


figure[3.3]

miami, fl

site orientation:

Located in Miami, Florida, this site consists of 127 acres along the Miami Riverfront. 5.5 miles in length, the navigable river stretches from the mouth, at Biscayne Bay, inland as far as the International airport. Beyond this industrial 'upper river' the Miami canal extends into the everglades; the origin of the river. The master plan will encompass the first .75 navigable miles of the lower river.



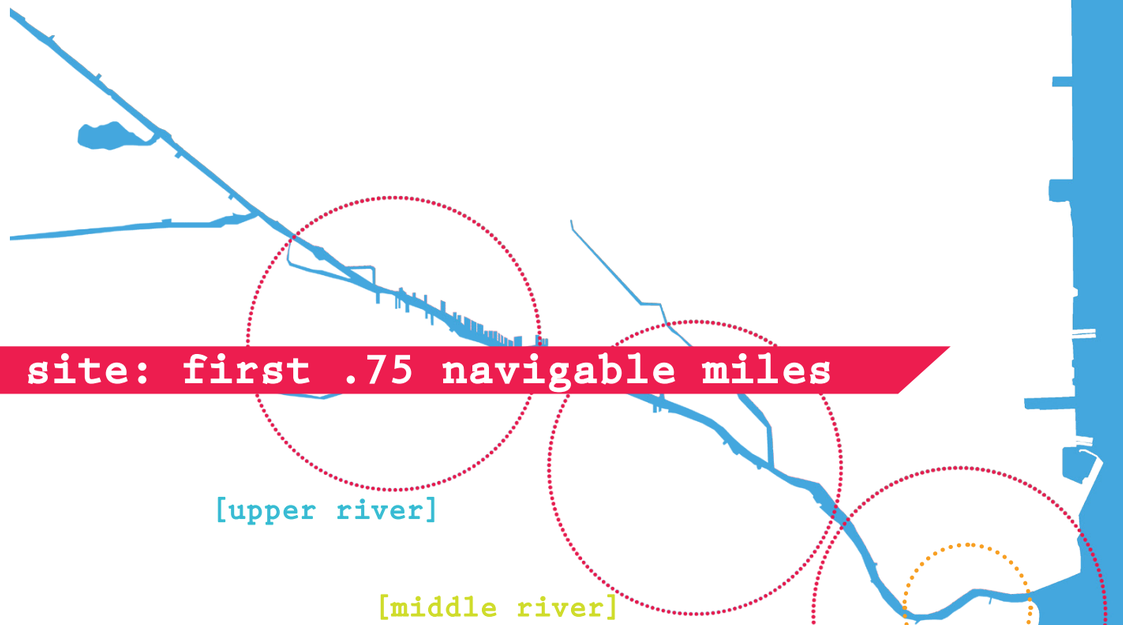
figure[3.4]

figure[3.5]

navigable miami river: 5.5 miles

site: first .75 navigable miles

127 acres



figure[3.6]

[navigable river diagram]

site inventory:

The inventory below observes the major systems that contribute to the function of the Miami River and surrounding urban area. 5 main arteries dissect the river (3 vehicular and 2 rail transit). The built density does not suit the needs of such an urban core, and much of the vehicular traffic separates the community from the river. This diagram looks at systems layering of opportunities, dead space, and infill to aid revitalization.

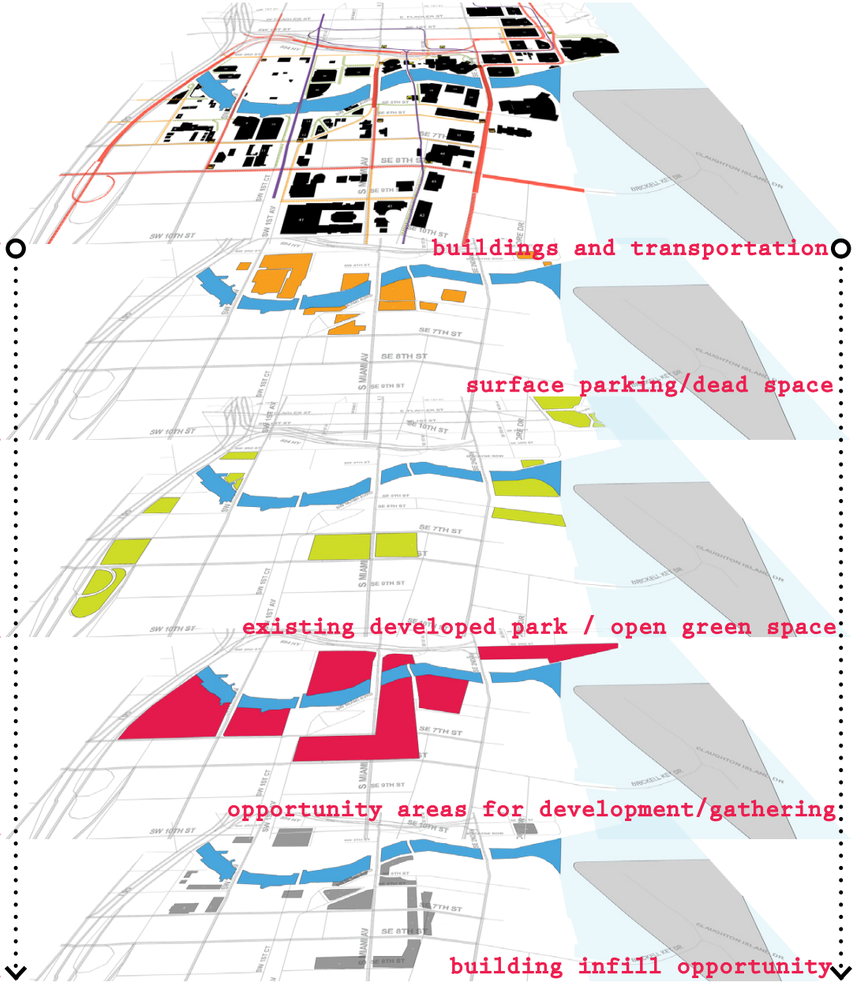
Major arteries highlighted according to traffic volume. Building footprints display the disconnect in urban density.

Parking and dead space occupy much of the river's edge; disrupting flow of riverwalk opportunity.

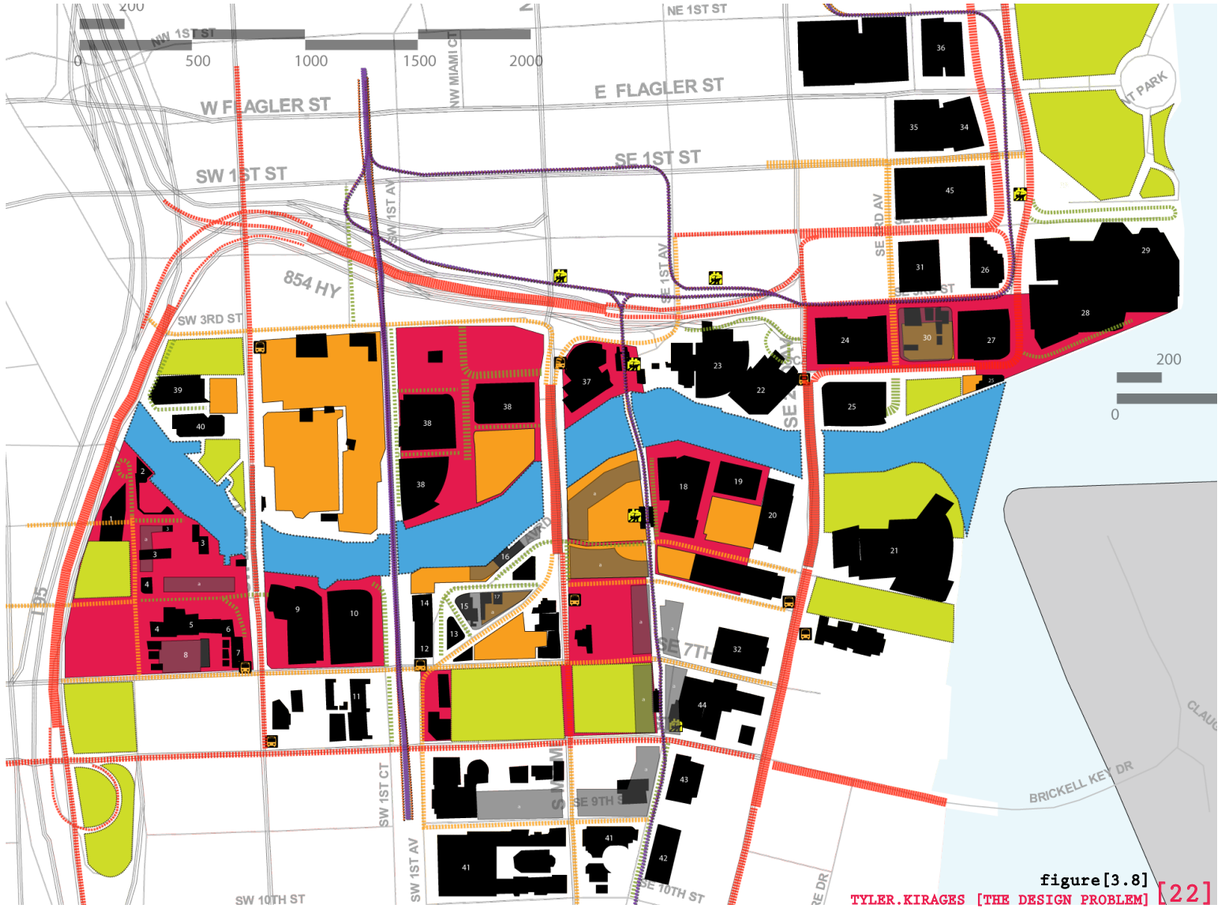
Ample park space to the north and south of the river lack a solid pedestrian connection but provide nodes for reaching the community.

The riverfront is now seen as an opportunity to support community gathering and encourage interaction with water though design development.

Infill will connect new and existing retail development with the river and aid economic revitalization.

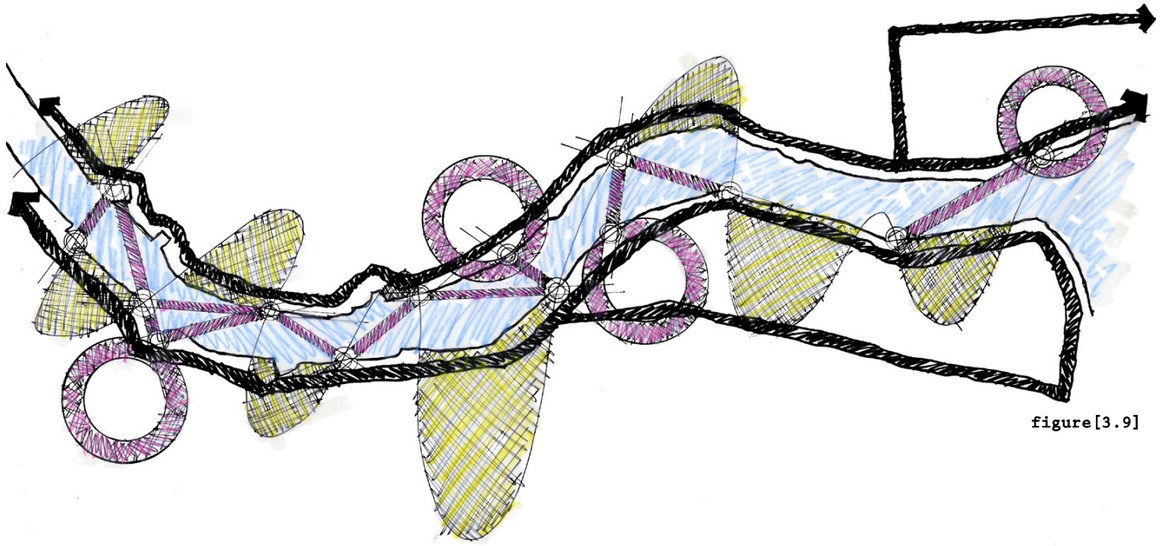


figure[3.7]



figure[3.8]

site analysis:



figure[3.9]

[ecology]

Nodes and movement along the riverfront are two evident elements in analysis. The benefits of integrating ecological and pedestrian networks along, and across the Miami River will include, successful circulation, attraction of local population to the water, and the mitigation of pollution in the creation of a healthy river.

figure[3.10]

[typology]

Creating unique, diverse spaces along the riverfront through typology analysis will allow design to be an evolving experience to the user.

[recessed riverwalk]

Introducing the visitor closer to the water level.

[gathering areas]

Nodes of entry and activity; entertainment plaza opportunity.

[green infrastructure]

Adapting to existing green space; while aiding ecological network.

site analysis:

100 stormwater outfalls

With 100 instances of stormwater entering the navigable Miami River, remediation becomes necessary to protect river health

figure[3.11]

continuous riverwalk

Revitalization will not succeed without a complete riverwalk accessible to all communities

figure[3.12]

connecting communities

Community-to-community and community-to-water

upper river

middle river

lower river

figure[3.13]

a new network through miami: bridging the gap

cultural

interest

business

5 min walk: cultural, interest, and business nodes

figure[3.14]

upper river: shipping and marine industry

middle river: mixed use and residential

lower river: downtown/urban core

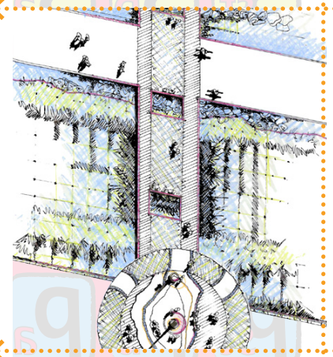
[relation to nodes]

The connection diagram above stems from the inset to the left. A 5 minute walking radius from all cultural, interest, and business nodes determine the network of connections that relate community-to-community, and community-to-water.

case studies:

[living docks]
[west palm beach, fl]

[mobility]



a mobile riverfront will ensure activity, and interaction with the water and new habitat

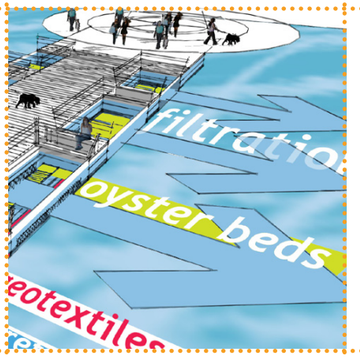
[living docks]
[west palm beach, fl]

[integrating vegetation]

integrating vegetation into boardwalks and docks interacts with the visitor and helps with food production

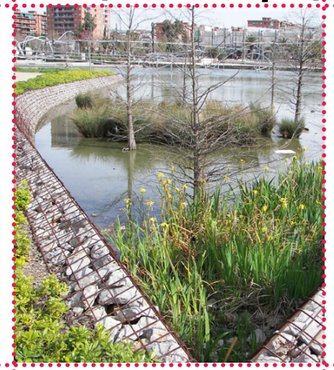
[living docks]
[west palm beach, fl]

[oyster habitat]



contained oyster growth: water filtration systems may be implemented along the riverfront in multiple stages

[parc diagonal mar]
[barcelona, spain]



[water filtration]

urban forests may also contribute to stormwater filtration along the evolving riverfront design

[riverfront plaza]
[hartford, connecticut]

[bridging the gap]

design must consider movement of the pedestrian across vehicular traffic and the void of urban rivers

[Zakim bridge]
[boston, massachusettes]

figure[3.15]

[neglected opportunity]

figure[3.16]

underbridge: exists opportunities to light and activate dead space to incorporate pedestrians and vegetation

design process:

From conceptual design to individual living dock plans; this section explores the master plan of the new Miami Riverwalk. Also find the elements of design branding, and the ecological benefits of urban forests and the impact of the oyster on the health of the river. Each living dock contributes a different aspect of ecology, art, and culture to the journey.

figure[4.1]

[riverwalk] [living docks] [culture]

conceptual process:

1. Early conceptual design resulted in branding diagrams involving elements, materials, and funcitons: helping to support design decisions.

2. Bamboo is analyzed for design and function. Urban forests of bamboo can survive in Miami, while remediating stormwater and inspiring systems in design.

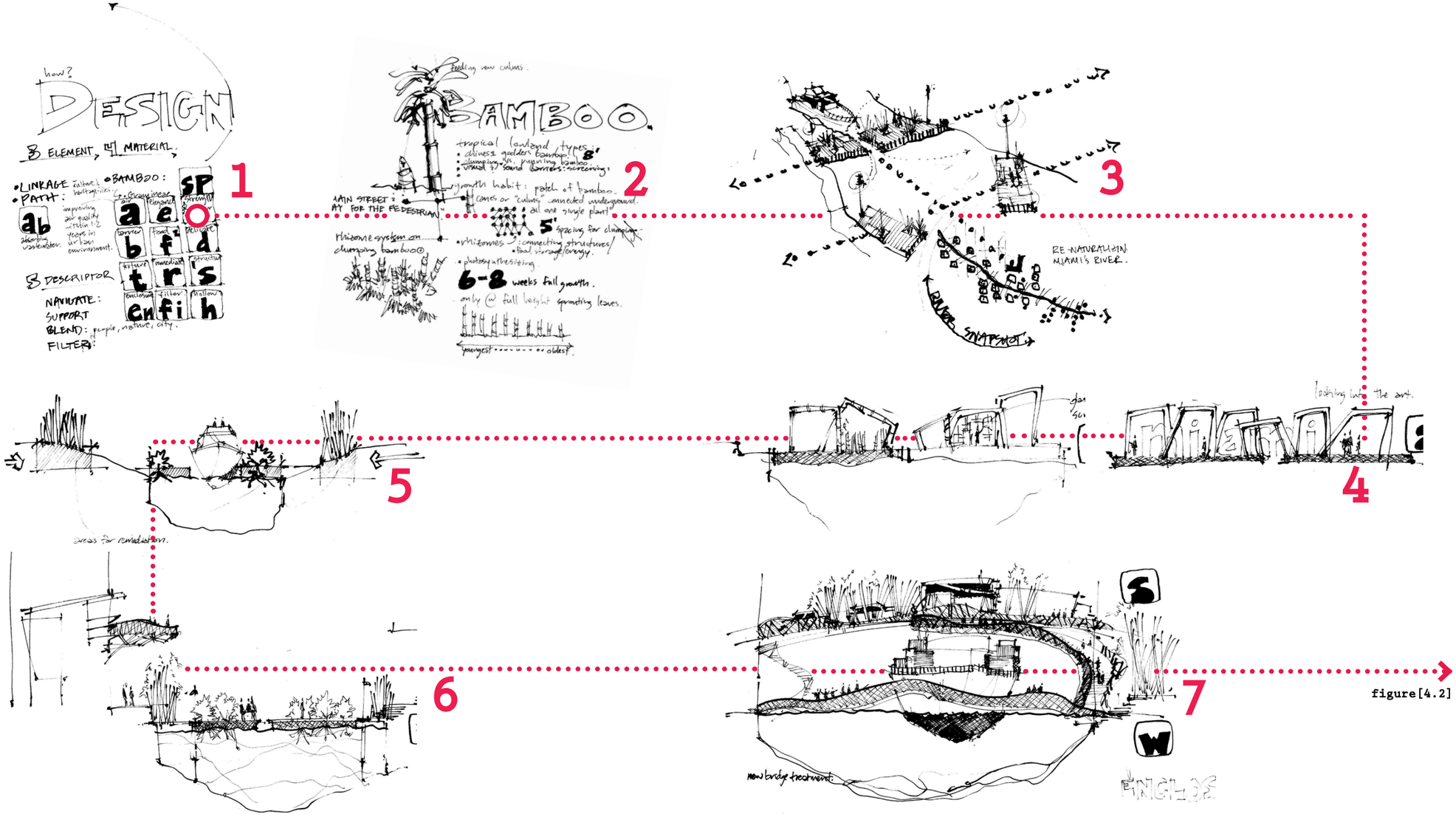
3. An interactive waterfront: beginning to think about pedestrians crossing the river while allowing for boat traffic.

4. Combining bamboo and art to inspire new culture and signage along the river.

5. Realizing the function of urban forests in conjunction with the flow of water into the River.

6. Developing living docks along the river which support vegetative growth and pedestrians.

7. How will pedestrians cross the river through an artful design?



figure[4.2]

conceptual plan:

bamboo as a spatial separator along the riverwalk

large gathering spaces essential at design entry nodes

branding the riverfront:elements and functions

living shorelines in opportunistic areas

living docks:a riverfront that evolves

using existing and infill structures for decentralized parking

more plazas create along riverfront for reatil, shopping, and living opportunities: social revitalization

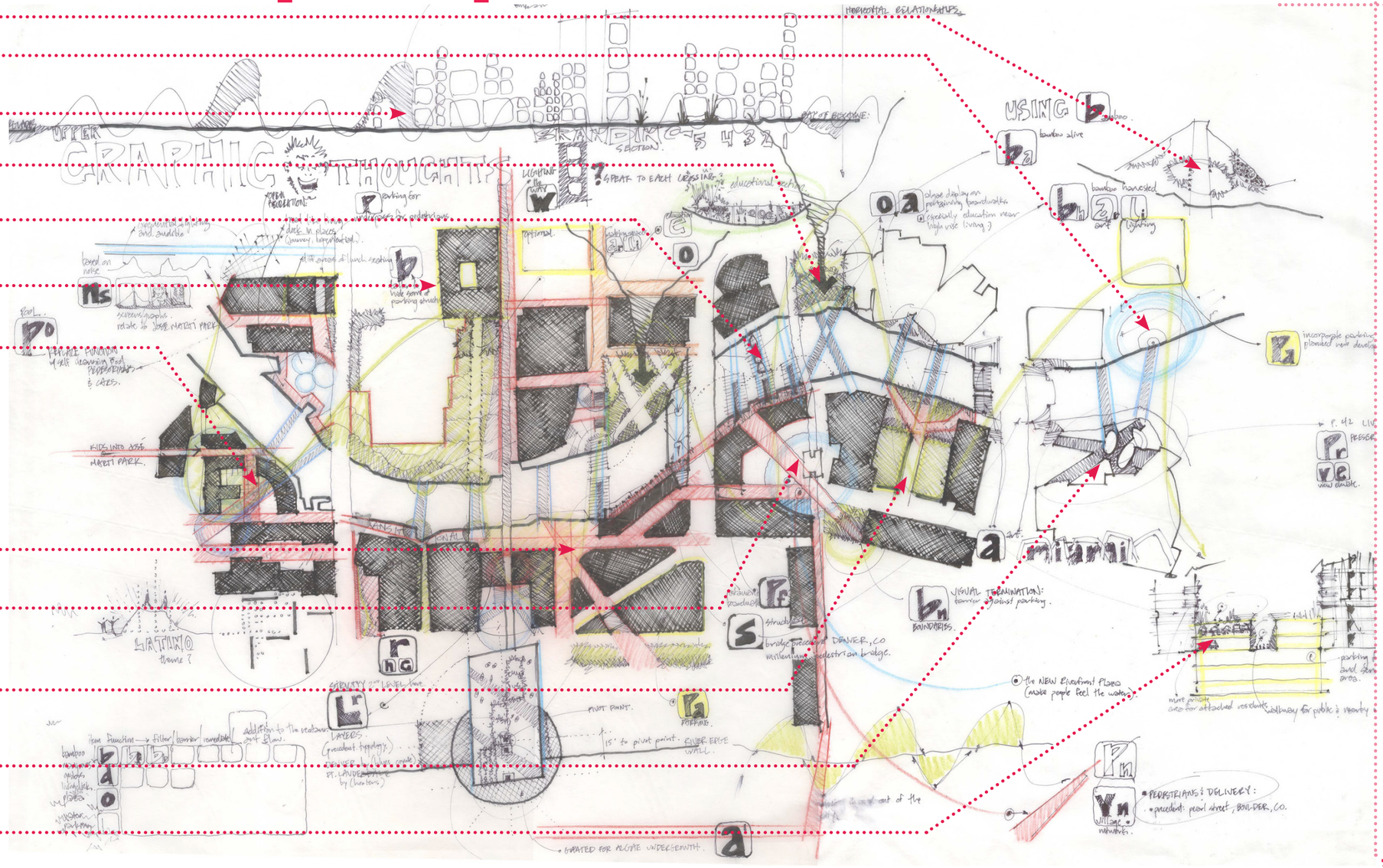
continuing the riverwalk throughout the entire design

plazas at transit hubs that lead to water interaction and allow for community events

adapting existing surface parking to incorporate green space and pedestrians

encompassing the historic miami circle

utilizing the benefits of underground parking



figure[4.3]

design branding:

element + function

[the matrix]

Design branding unifies each design decision along the Miami Riverfront through element and function. This matrix gives form to 4 quadrants: natural design, natural ecology, built design, and built ecology. This matrix may then be taken into analysis of each portion of design, living docks, living shorelines, riverwalk typologies, and community connections through streetscape. Notice that each design throughout the booklet creates a different relationship of built vs. natural vs. design vs. ecology.

bamboo

mangroves

algae

oyster

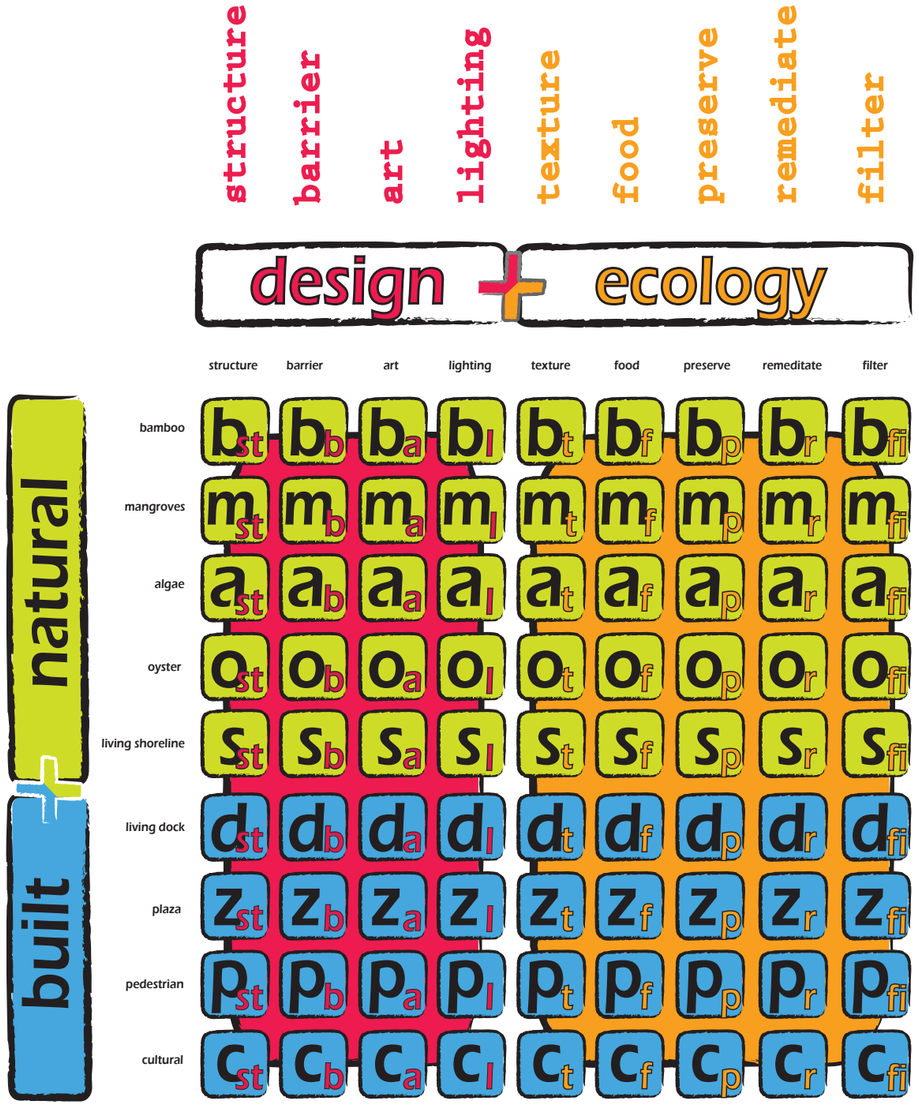
living shoreline

living dock

plaza

pedestrian

cultural



figure[4.4]

master plan:

scale:

0 100 300 feet 700

site:
127 acres

figure[4.5]

a.living dock:
grated entry area and multi-function boardwalk use

b.miami circle:
preserving historic site through raised walkways

c.proposed riverwalk:
the continuous experience

d.parking structures:
decentralized and modified for green roof structure

e.office complex:
working on the river

f.living near river:
mostly high-rise condominiums, and some hotels

g.mixed use:
proposed village network, restaurant/ retail/shopping

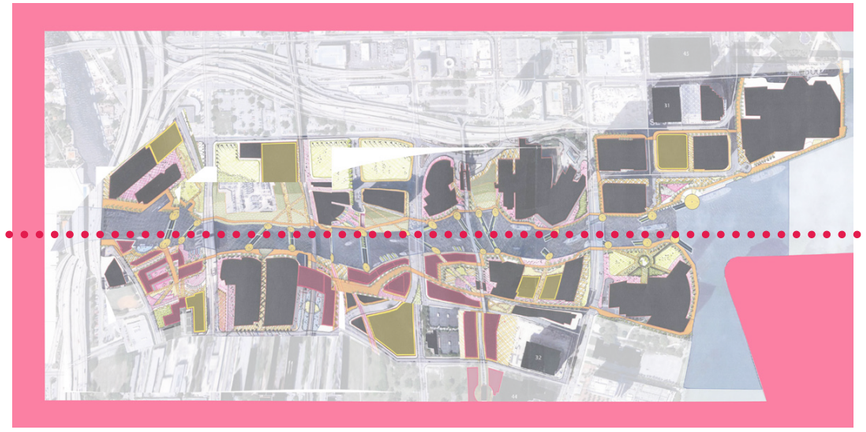
h.living shorelines:
habitat creation, oyster beds, mangroves

i.community use:
community, university , government buildings

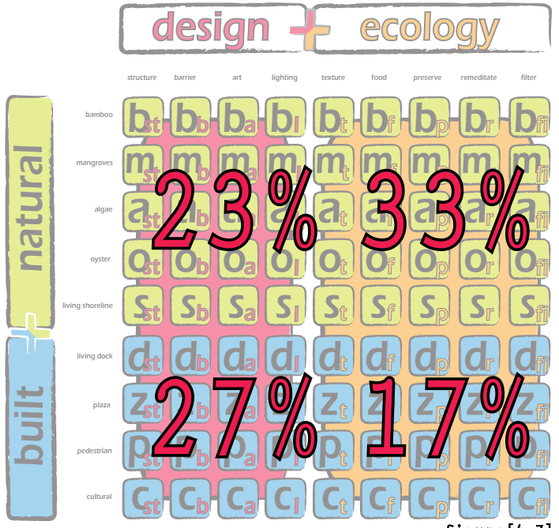
j.plaza:
major pedestrian gathering/event spaces

m.urban forest:
bamboo groves and remediation in master plan

n.open green space:
design for active/ passive recreation



the Miami River as a continuous corridor



figure[4.7]

relationship

[element + function]

The diagram to the left is a breakdown of the element+function branding as it occurs in the design along the river. It observes the continuous corridor of the River and implementation of design, ecology, built, and natural elements. The matrix shows that the most important feature of the project is natural ecology at 33%. Followed by natural design, built design, and built ecology.

figure[4.6]

master plan branding→implementation:

urban forest and bamboo: oysters and water filtration:

An urban forest composed of bamboo will be able to filter pollutants from air and water. With the vast size of the Miami River basin (69 sq. mi.); mitigating pollution is an extreme effort. Every acre will aid the effort, so by using this design typolgy throughout the entire river corridor will help to implement 21 acres, or even more, of pollutant mitigating urban forests in the Greater Miami-Dade area. Urban forests:highlighted in green below.

- improve air quality
- reduce storm water run-off
- provide ecosystem benefits

69 SQ MILE: miami river basin

2.93 proposed acres of pure urban forest

figure[4.8]

21+ urban forest acreage potential along the entire Miami River Corridor

- improve water quality (filter feed)
- food source (local and wildlife)
- provide habitat

25 GALLON/DAY water cleansing

1.88 proposed acres of oyster bed habitat

figure[4.9]

14+ oyster bed habitat acreage potential along Miami River Corridor

figure[4.10]

urban forest/oysters in the master plan

Imagine the impact that oysters will have on the Miami River upon full implementation. While one single, full-grown oyster can filter 25 gallons of water in a day during feeding season, nearly 500 oysters will occupy 1sq. meter of full oyster bed growth. The highlighted blue areas in the diagram below represent oyster bed implementation in living shorelines and docks.

oyster + time:

[eastern oyster]

The eastern oyster will be implemented in the living docks and shorelines first in grid-like rope structures; allowed to naturally grow into oyster beds and inhabit and cleanse the miami river for years to come

[algae]
[detritus]
[pollutants]

[oyster habitat]
50/m²

[cleaner water]

[evolving into natural habitat]

figure[4.11]

500/m²

100% daily water filtration of the miami river

inedible

edible

5 10 15 20 50 [years]

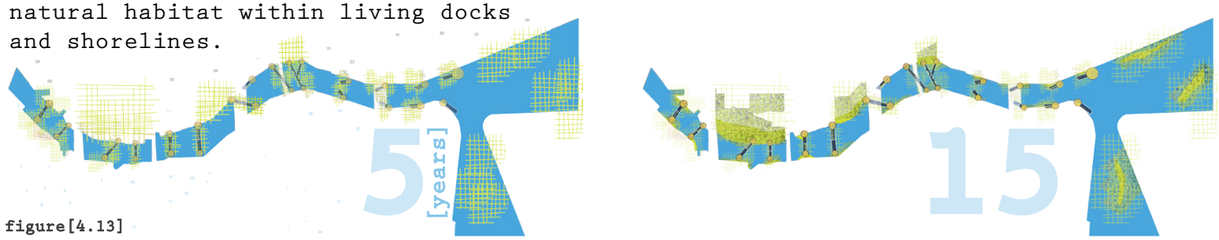
figure[4.12]

WORKING [OYSTERS]

EATING [OYSTERS]

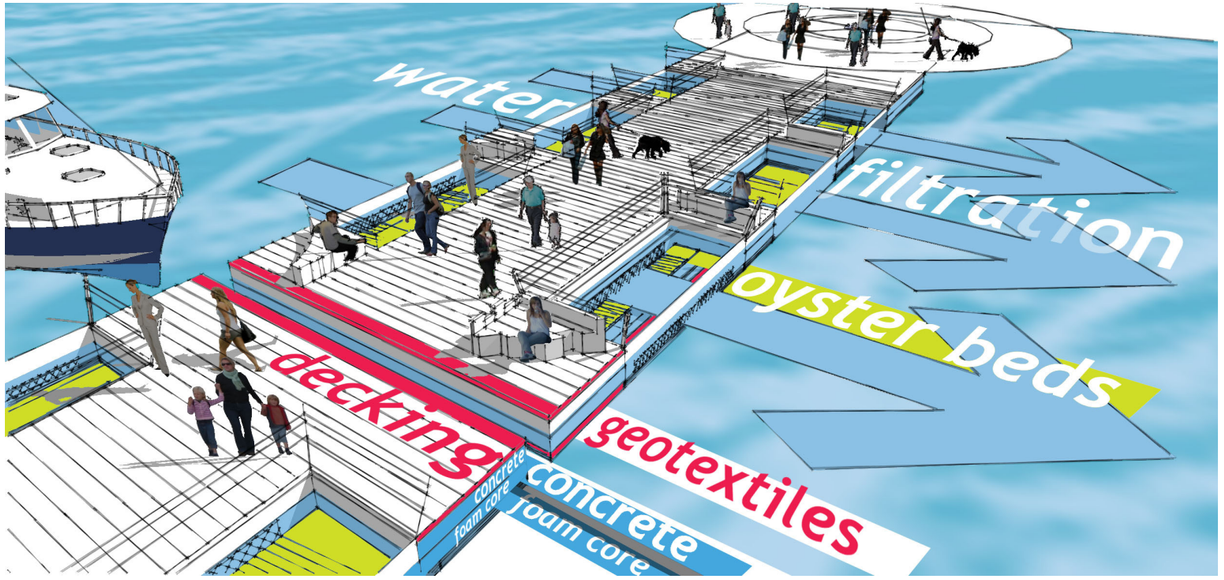
[evolution in design]

Allowing oysters to develop into a natural habitat within living docks and shorelines.



figure[4.13]

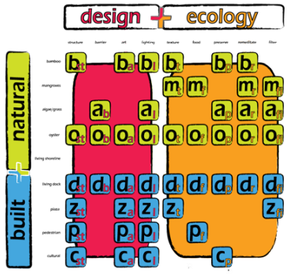
ecological living dock: oysters



figure[4.14]

[water cleansing]

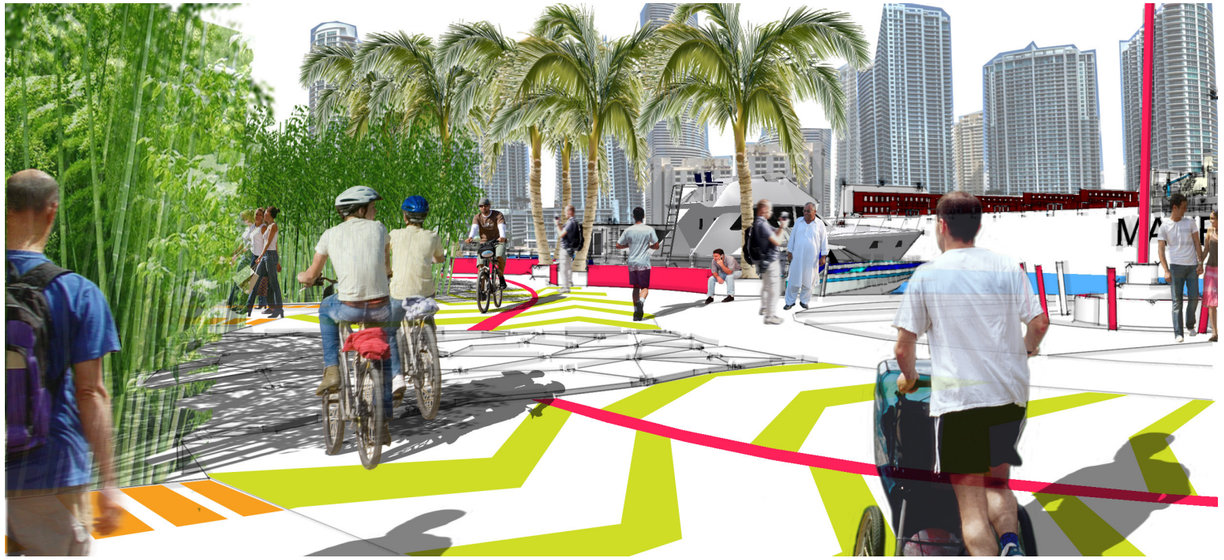
The main purpose of the oyster-based living dock is to establish a system of water filtration along the miami river. The complex layering of the living dock system allows geotextiles to house oyster habitats; while allowing water to flow through these beds and continuing to the next checkpoint. This area of the riverwalk houses a scaled version of the river itself; speaking to each filtration point.



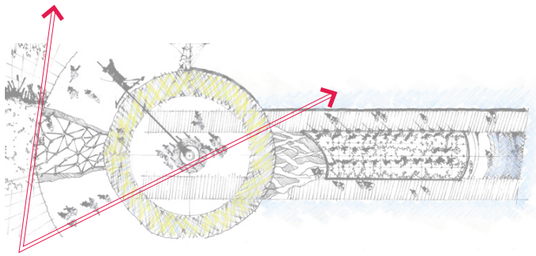
figure[4.15]

figure[4.16]

ecological living dock: mangroves



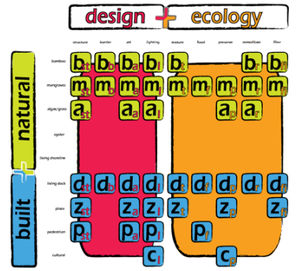
figure[4.17]



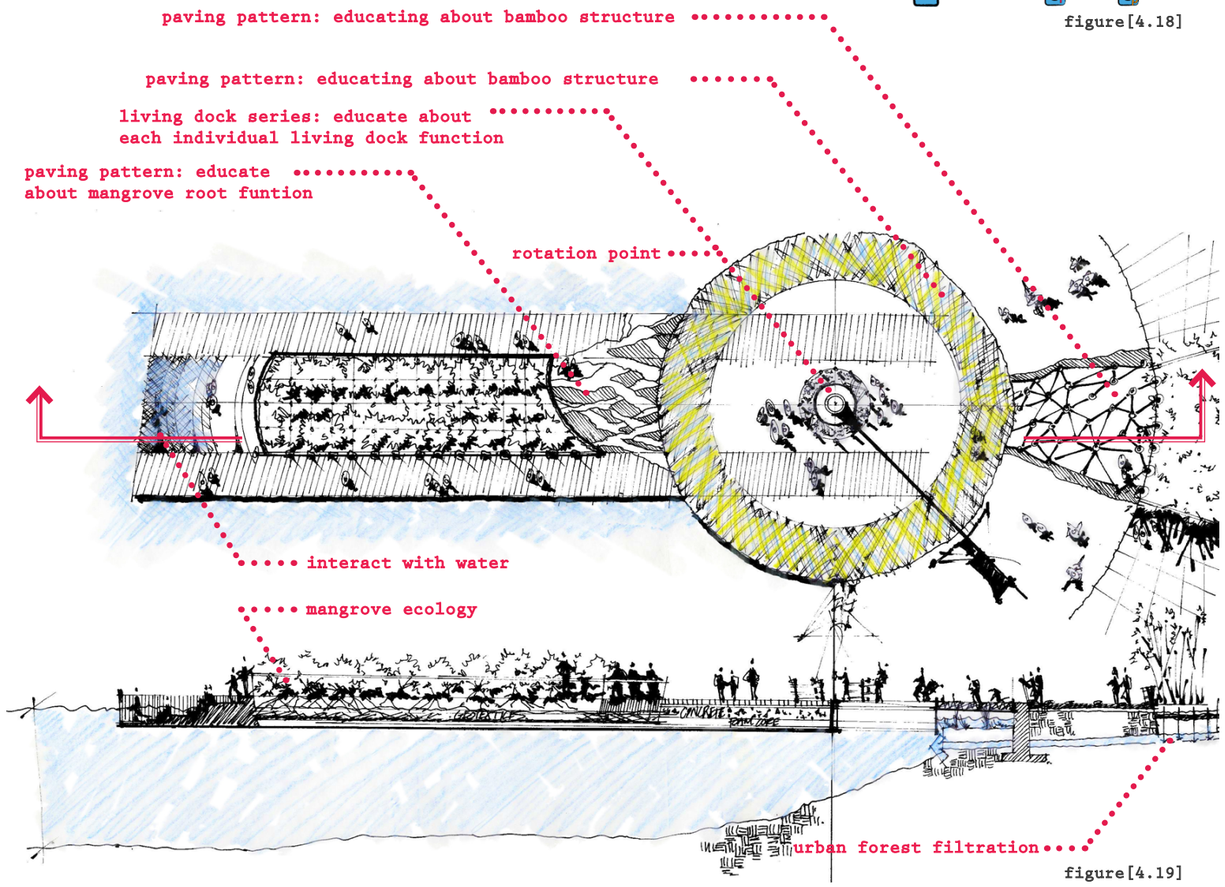
[view]

[spatial experience]

This view speaks to the importance of urban forests along the Miami Riverfront. These urban forests allow for improved air quality, reduced stormwater run-off, and ecosystem benefits. Bamboo creates barriers and spatial separation for the pedestrian, and relates to the mangrove ecology of the adjacent living dock.Notice the designed circulation of the new riverwalk and direct access to the water.



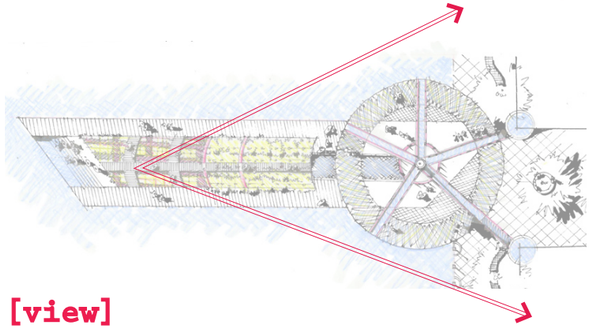
figure[4.18]



figure[4.19]

ecological living dock:

figure[4.20]

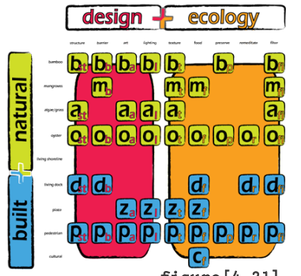


[view]

[gathering food along the riverwalk]

Locating productive living docks adjacent to restaurants will allow for organic and sustainable food consumption. This food production may also support local residents and provide for community building activites. The moringa tree is a versatile product in this climate: roots, leaves, stems, and flowers are all useful from this vegetation; this is another riverwalk educational opportunity

food production



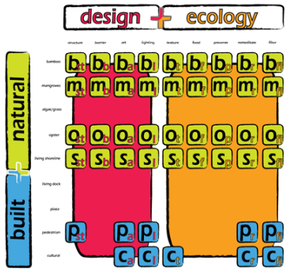
figure[4.21]

figure[4.22]

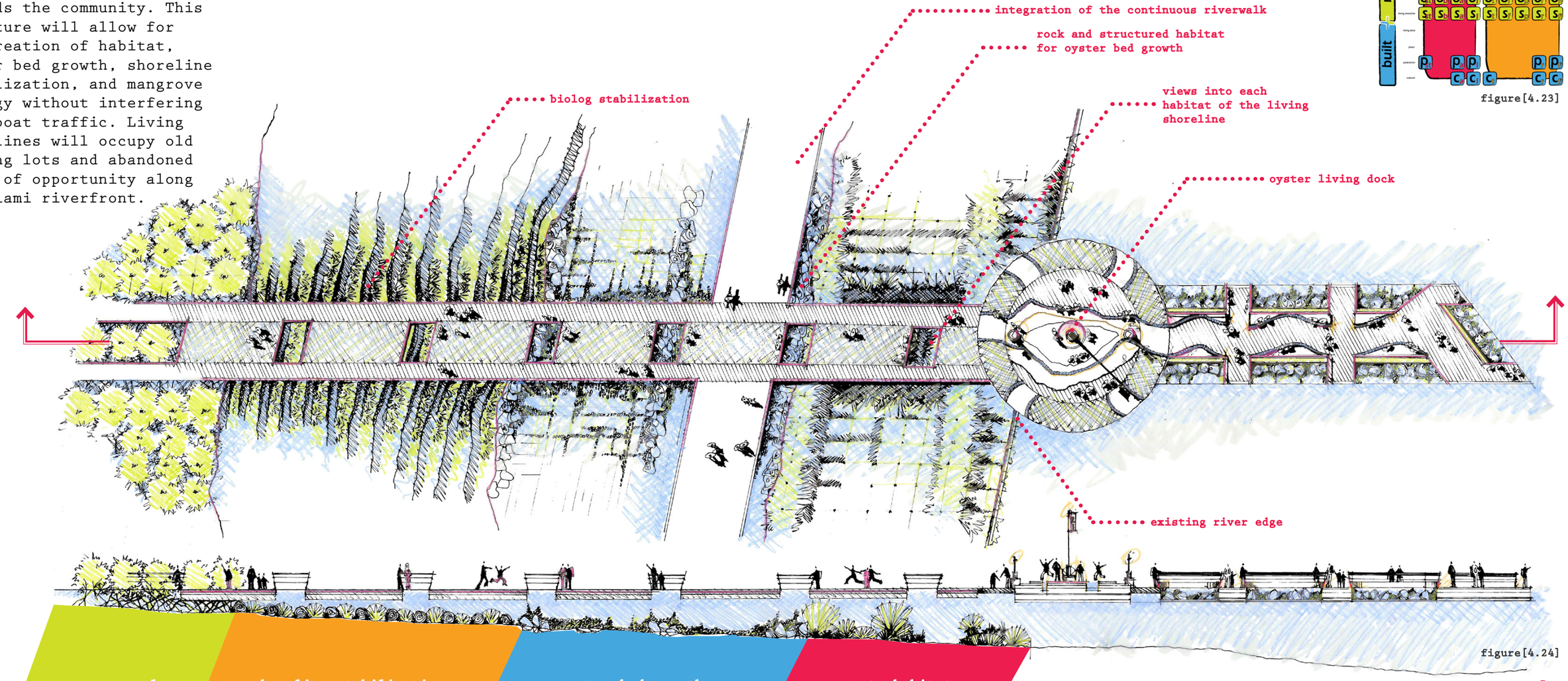
ecological design: living shorelines

[new habitat]

Living shorelines will begin at the existing edge of the river and reach inland towards the community. This structure will allow for the creation of habitat, oyster bed growth, shoreline stabilization, and mangrove ecology without interfering with boat traffic. Living shorelines will occupy old parking lots and abandoned areas of opportunity along the miami riverfront.



figure[4.23]



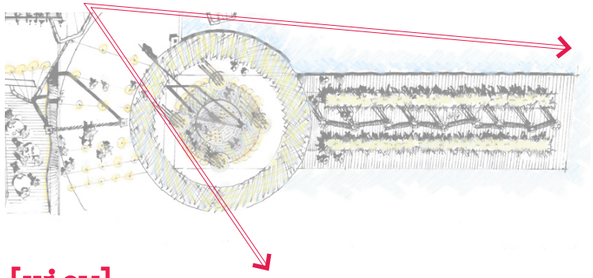
figure[4.24]

cultural living dock: art

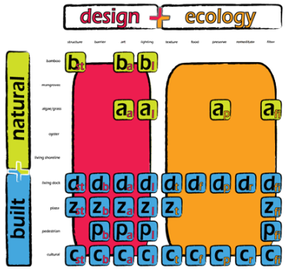
figure[4.25]

[local culture along the riverwalk]

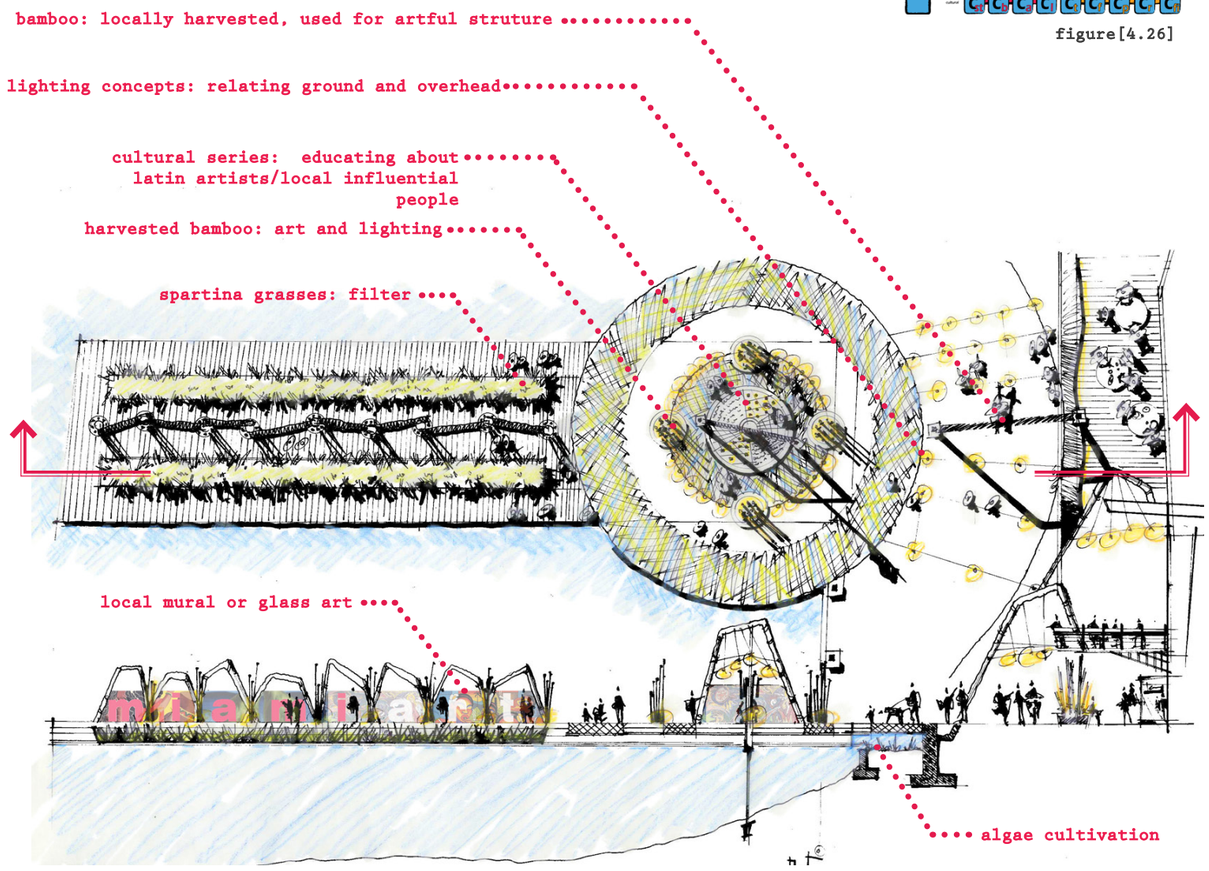
To help re-establish and revitalize the latin culture of the area, local mural and glass art will be incorporated into appropriately located living docks. Cuban art will find its way back into the community. Bamboo is the dominating element in this theme; it creates arches to support the art, and is also used in preserved, cut-fashion for spatial separation and a natural, sustainable form of art.



[view]



figure[4.26]

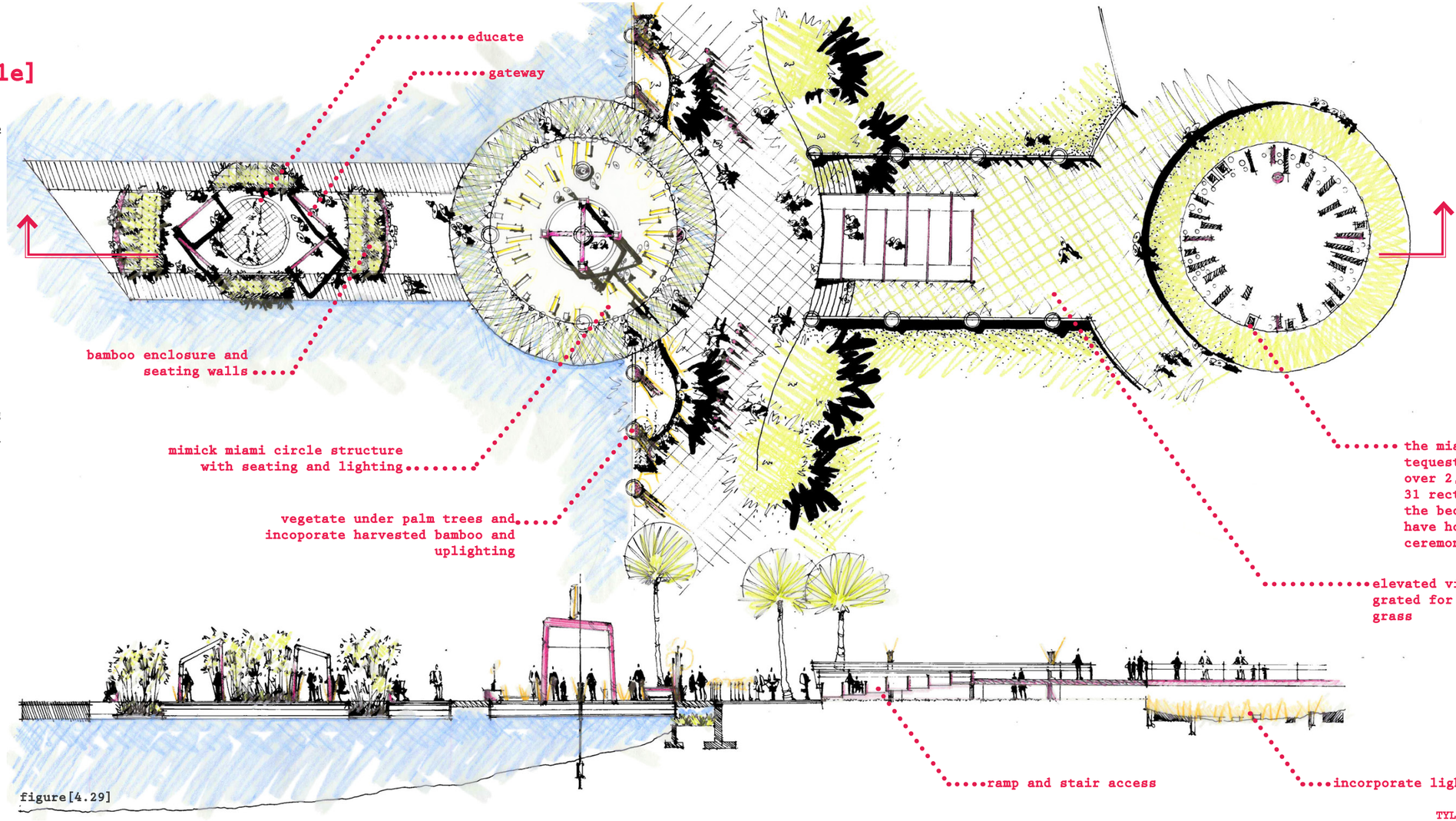


figure[4.27]

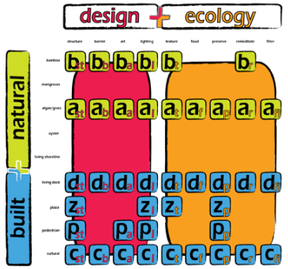
cultural living dock: history

[the miami circle]

It is important to preserve the culture and heritage of the 2000 year old miami circle site. This living dock pulls inspiration from the organization of the ceremonial site; while the lighting and rectangular seating is a mirror image of the actual site, the bamboo enclosure represents the original spatial design function. The shark emblem speaks to actual fossils found from ceremonial procedures.

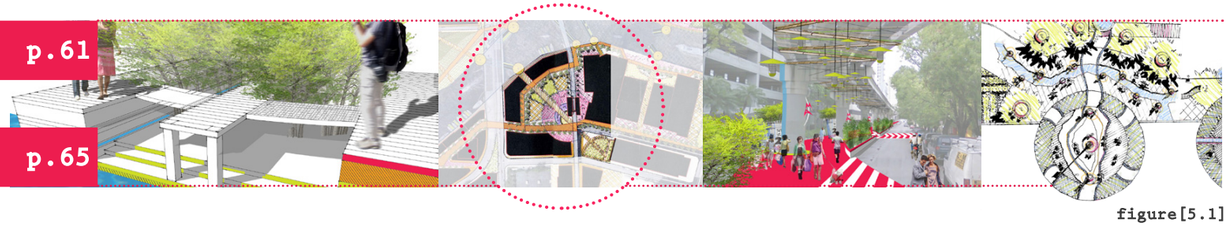


figure[4.29]



figure[4.28]

detail design:



figure[5.1]

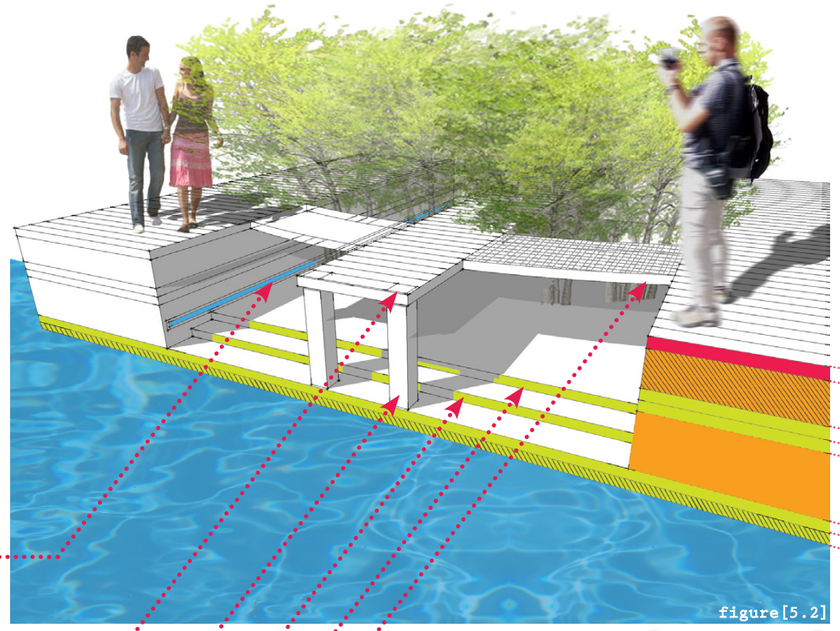
In this section: drawings that detail the engineering basics behind the living dock functions, as well as essential pieces of site design that will complete the revitalization effort along the Miami River corridor. This includes the entertaiment plaza, mixed-use design along the riverwalk, and the journey through surrounding communities to the water

design detailing: living docks

scale: in feet
0 .25 .5 1 2 3

[sustainable]

Based on the built example in West Palm Beach, Florida, these living docks utilize a complex layering system to function for circulation, vegetation, and water filtration. When applicable; salvaged materials such as wood, aluminum, and steel are implemented. Each dock is designed for sustainability: in food production, education, material consumption, and water filtration of stormwater and the Miami River.



figure[5.2]

overflow drain for stormwater

boardwalk for gatering food:salvaged wood

6"x6" salvaged wood pylon

additional geotextile layering to support growing medium

aluminum grating walkway system

[layering]

All floating docks use decking, concrete, and foam core: these living docks will incorporate geotextiles and filtration systems to support vegetation, oysters and clease the Miai River.

art and culure series

8" brushed aluminum flagpole

housing for living dock mechanical functions

gear mechanism powering living dock rotation

18" concrete seat wall

aluminum grating walkway: viewing habitat growth

3" plastic wood decking

10" concrete (decking base)

3" geotextile layering

3" geotextile layering

12" floating dock foam core

3" geotextile waterproofing

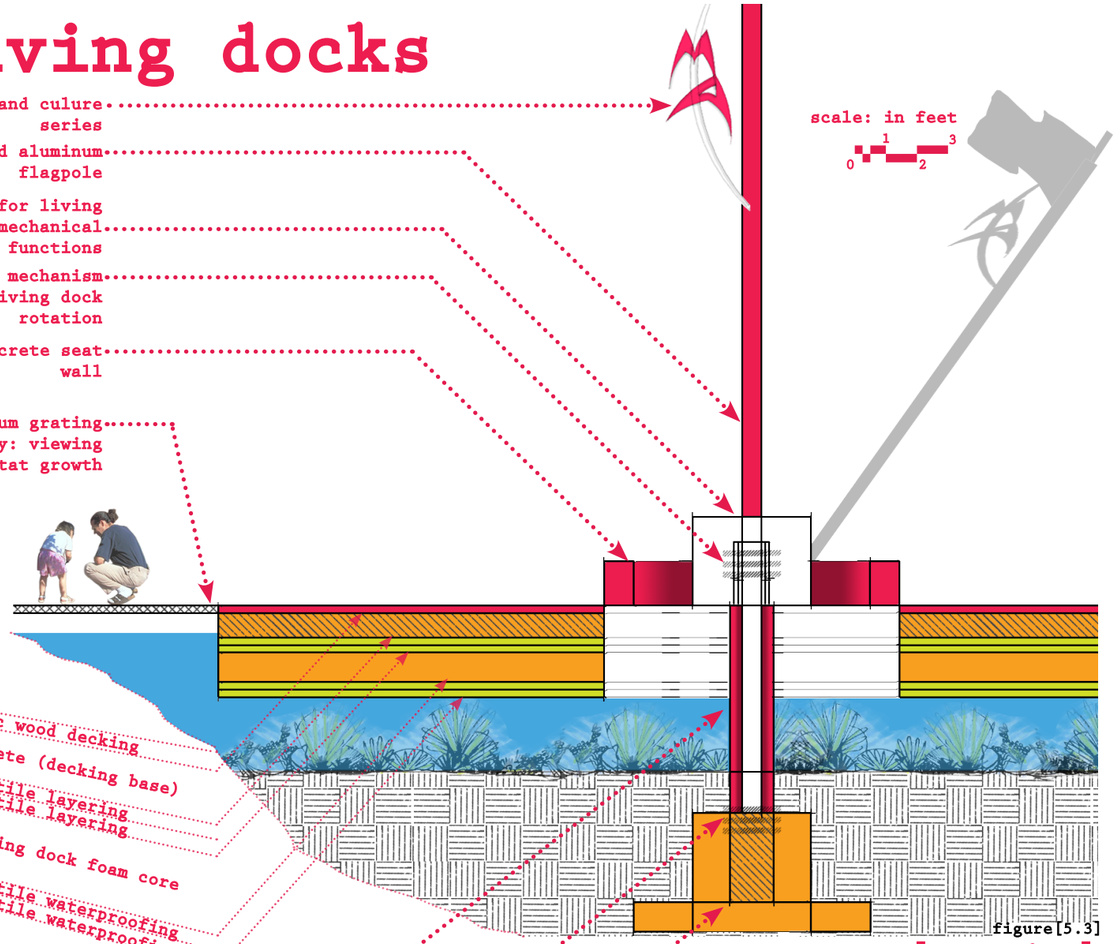
3" geotextile waterproofing

18" steel axel for living dock rotation

gear mechanism powering living dock rotation

concrete footer stabilization

scale: in feet
0 1 2 3



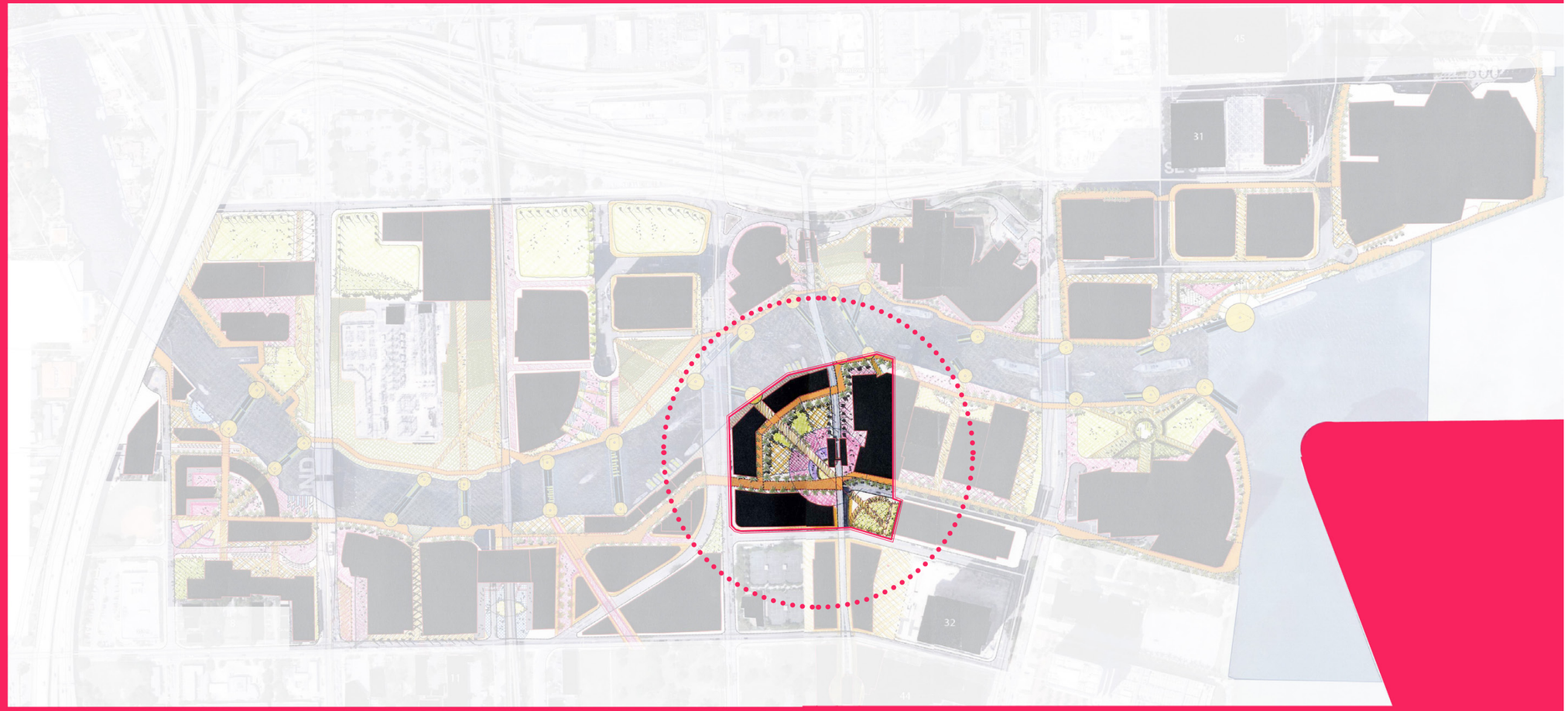
figure[5.3]

[rotation]

Every dock must rotate to accommodate boat traffic and pedestrian crossings: docks will use this combination of gear, axel, and footing for a rotation mechanism.

site design:

urban design for the pedestrian



figure[5.4]

community plaza:
entertainment

scale:
feet

0 20 60
10 40

figure[5.5]

(a) algae undergrowth area adjacent to oyster beds

(b) 1st level open-air pedestrian path: connect to water

(c) pedestrian and vehicle shared area

(d) underbridge design for pedestrian walkway

(e) pedestrian bridge

(f) plaza overlook

(g) bamboo vegetation enclosure

(h) sloped walkway and runnel system

(i) metrorail stop

(j) stage and shaded canopy structures

(k) gridded plaza design incoporating shade structures, bamboo and tree pods

(l) balcony for 2nd level restaurant and 3rd level living

(m) rooftop gardens

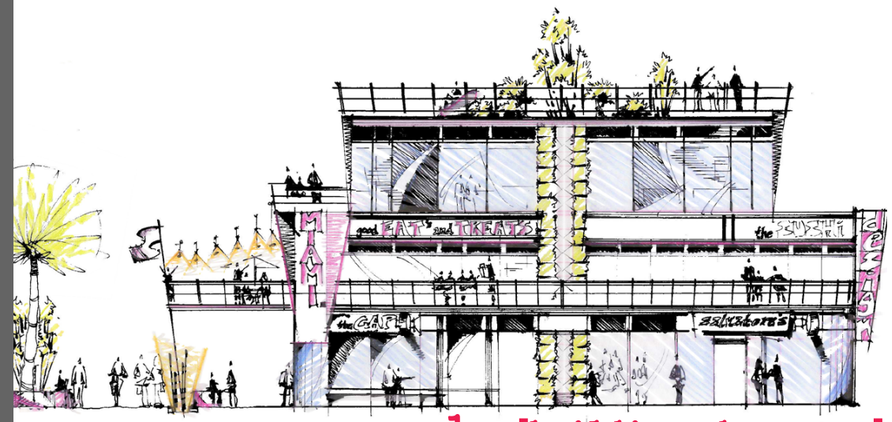
(n) community gardens

(o) small body: slim palm trees

(p) large body: shade palms

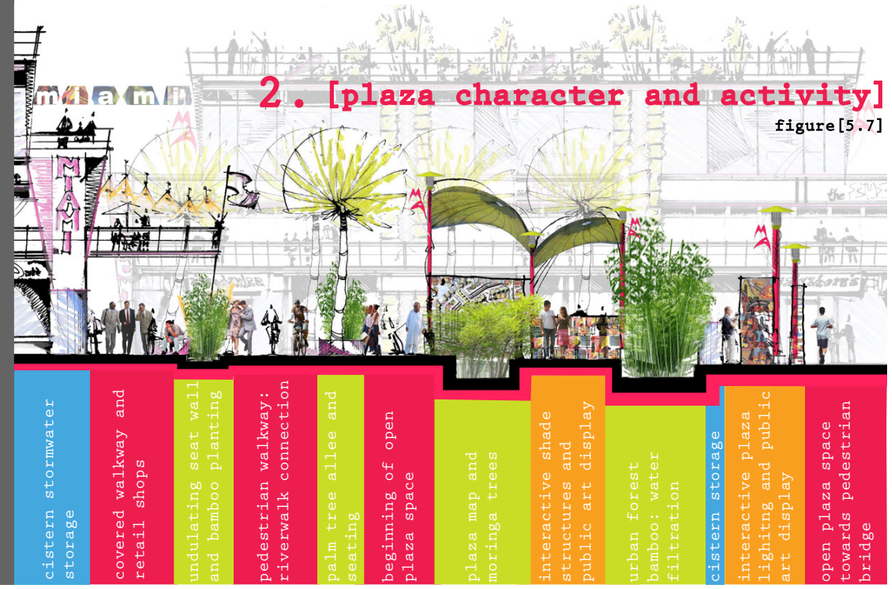
(q) urban forest

(r) connection to high-rise living



1. [building character]

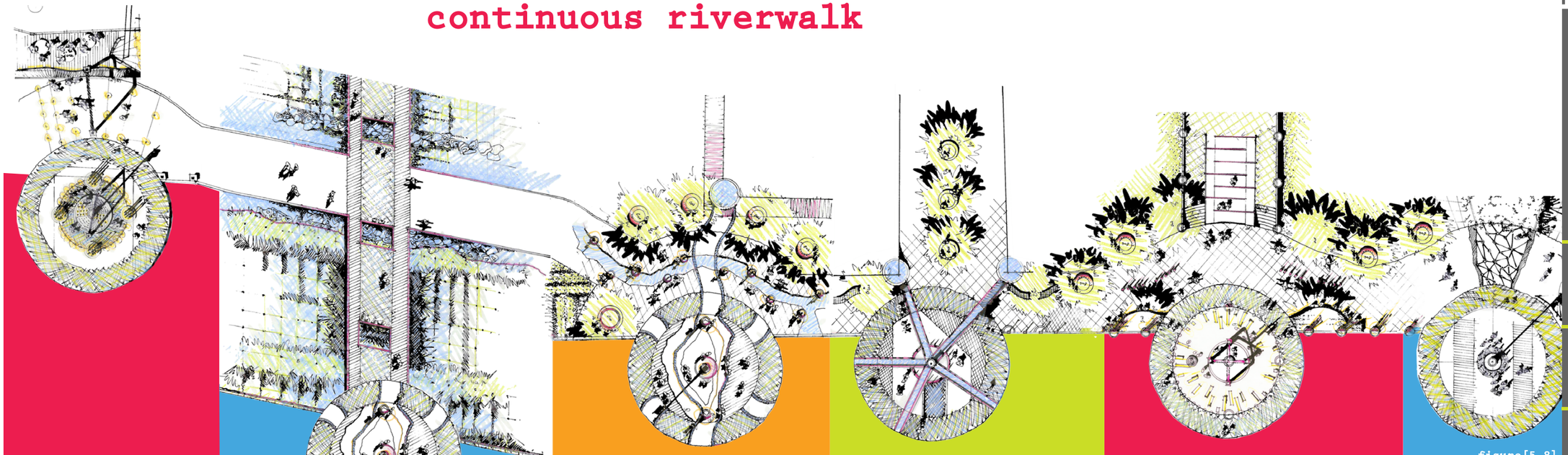
figure[5.6]



2. [plaza character and activity]

figure[5.7]

mixed-use design:
continuous riverwalk



figure[5.8]

1 interact

2 natural

3 educational

4 green

5 historical

6 forest

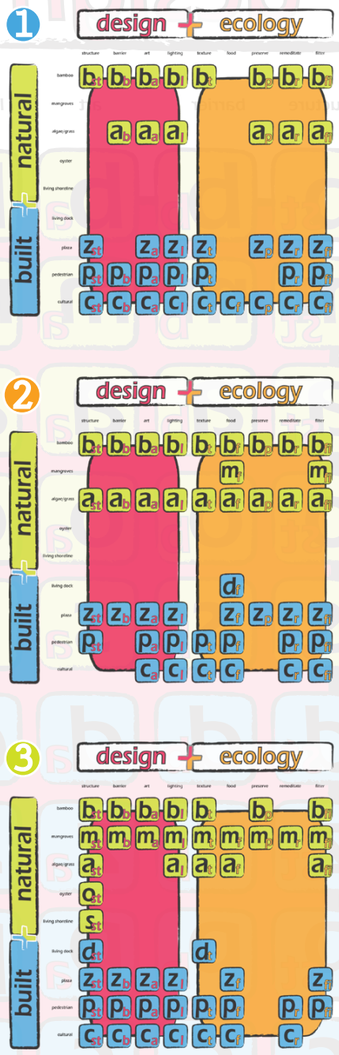
successful riverfront

The sucess of the revitalized riverfront will rely heavily on the function of the continuous riverwalk experience. The riverwalk will be the transition from living spaces, to shopping, retail, community gathering, and open space opportunities.

1. Provide spaces where people can interact and create a personalized experience
2. Along the living shorelines, the riverwalk will focus on the natural habitat
3. Portions of the riverwalk will educate about the Miami River and raise awareness about a healthy river.
4. Stormwater retention and use will be important to irrigate plants on the living docks and riverwalk.
5. Create nodes that focus on historical and cultural hotspots of the latin community
6. Urban forests of bamboo will filter stormwater and create unique spaces along the riverwalk.

the journey: to the water

[branding implementation]



figure[5.9]

[cultural connections]

[neighborhood connections]

[streetscape]

[journey line]

figure[5.10]

1 [cultural connections]

1.It is important to reflect on the cuban and latin heritage that gives Miami much of its foreign decor. By highlighting sites such as this cuban memorial along 7th street, design will create cultural connections to the waterfront, and within the community.

2 [connect neighborhoods]

2.Relating artful riverwalk design to points of interest throughout each neighborhood of the community will create a unifying concept in design. This view shows destinations that include community gardens and stormwater-centered streets.

3 [utilize underbridge]

3.The metrorail offers an elevated canopy that is a neglected space. This view encompasses that opportunity for pedestrian enclosure in vegetation, lighting, and pathway; making the pedestrian first priority in the journey to the water.

[journey line]

The journey line shows the connections these 3 scenarios make in order to connect communities with the river.

conclusion and appendices:

Conluding and summarizing the key words of engage, activate, and revitalize; and their implementation into the new design of the Miami Riverfront. This section also gives a look at the ‘behind the scenes’ information in the appendices. Get to know the author behind this comprehensive project on page 78

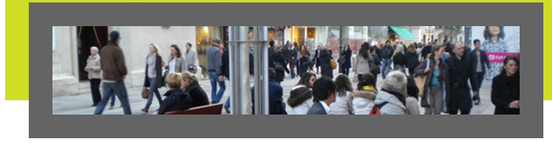
conclusion:

Highlighted below are the elements of design that correspond to accomplishing the 3 major goals of this project; engage, activate and revitalize

scale:

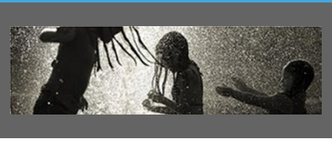
0 — 100 — 300 — 700 feet

engage



goals attained highlighted in [green] below

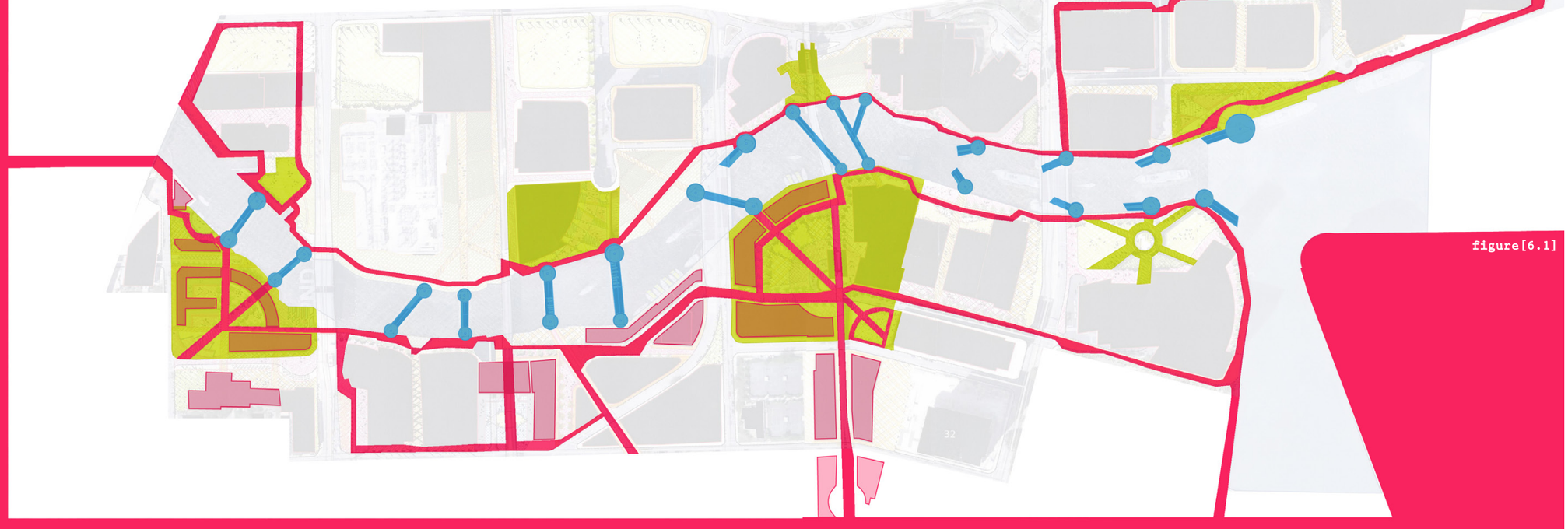
activate



goals attained highlighted in [blue] below

revitalize

goals attained highlighted in [pink] below



figure[6.1]

[engage]

Engaging the community with the riverfront has been accomplished through a series of plazas and entry nodes. Many of these plazas will accommodate entertainment on a number of levels; festivals, music venues, art walks, and outdoor activities. These spaces provide new opportunities for public gathering; the community will be re-introduced to the urban river corrider

[activate]

Activating the water and allowing visitors to interact with the Miami River is designed through the series of living docks. The docks take into consideration pedestrian and boat traffic, while allowing visitors maximum accessibility to the actual riverfront. The docks also educate and engage the community through art and cultural series', and food production; leading to an active, successful riverfront

[revitalize]

The network and buildings highlighted create the circulation and retail/ dining nodes necessary for a community, cultural, and economic revitalization. Reaching into surrounding communities ensures a diverse population using the riverfront and connects to existing nodes of activity within the Miami urban core

appendix a: site imagery


[looking east towards city]


[typical vehicle artery]


[wasted riverfront space]

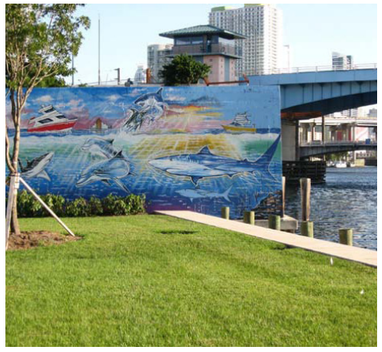
These images portray many scenarios that occur along the current Miami Riverfront. Most important to note are the images that show neglected, or uninviting spaces. Along some portions, a riverwalk is developed, but most images show poorly placed parking, dark underbridge areas, and concrete monstrosities that have no relation to the human scale; hence, the purpose of revitalizing the riverfront.


[high-rise living on river]


[near residential high-rises]


[outside j. knight center]

[murals in lummus park]




[riverfront metrorail stop]


[metrorail bridge over river]


[rail bridge at riverfront]


[nightfall decor of miami]


[under vehicular bridge areas]

figure[6.2]

appendix b: terms, etc.

[delimitations]

[1]. This project will not include a maintenance schedule

[2]. This project will not include a phasing plan

[3]. Beyond developing a city-wide framework plan, this project will not include a comprehensive master plan of the entire river corridor.

[assumptions]

[1]. The government and Miami River commission will allow all necessary changes in Riverfront zoning to accommodate new commercial/retail and public space development.

[2]. Residents in high rise developments along the Riverfront have decided that public space development along the Lower Riverfront is best for the community needs.

[3]. All necessary cleansing precautions for public space development have been taken on brownfield and junkyard sites along the Miami Riverfront.

[definition of terms]

[Green Infrastructure]: refers to the design elements that provide interconnected spaces that can clean air and water and provide functional spaces that boost the quality of life for users

[Revitalization]: refers to the improvements of the Miami Riverfront to re-engage the interest of visitors and locals alike, while providing an economic, aesthetic, and cultural stimulus.

[Urban Design]: is the process of creating social, functional, active, and aesthetic spaces in cities

[Interactive]: refers to the design elements that make a space unique, where the visitor is actively involved in an immersive, enjoyable experience

[Miami River Commission]: is the organization that acts as the official coordinators of all public policy and projects that are related to the Miami River

[Riverfront Design]: refers to any area along the Miami River that is developed to include plazas, walkways, corridors, and vegetation that will enhance the experience for pedestrians and boats

[Entertainment District]: refers to any area of project development that includes the addition of shopping, restaurants, and areas for civic events/festivals.

[for more international photography and sketches visit Tyler's website]

appendix c: about the author


[hanging temple, china]

[tyler mitchell kirages]

E-MAIL [tmkirages@gmail.com]

WEBSITE [tmkirages.iweb.bsu.edu]

FUTURE WEBSITE [tylerkirages.com]

Tyler Kirages is currently finishing his 5th year at Ball State University. He has enjoyed traveling throughout the United States and 26 countries internationally studying urban landscape architecture and cultural influences on the world of design. Traveling and adventure are also a passion; he intends to travel throughout his professional career, for both leisure and extended education opportunities. Tyler will begin his professional career in Boulder, Colorado as a Landscape Architect Designer working for DTJ Design, Inc. in May 2011

[abbreviated résumé]

[EDUCATION]

- **Bachelor's Degree in Landscape Architecture / Cumulative GPA: 3.806**
  - o Graduating with [Magna Cum Laude] honors
- **College of Architecture and Planning, Ball State University**
  - o **Academic Minor in Entrepreneurship**
  - o **Academic Minor in Spanish**

[WORK EXPERIENCE]

- **DTJ Design, Inc. / Boulder, Colorado**
  - o Landscape Architect Designer, Level 1 / May 2011-
- **Internship with EDSA, Ed Stone & Associates,**
  - o Fort Lauderdale, FL / May-August 2010
  - o Extensive experience in a design firm participating in every aspect of the design process
  - o Final illustrations, team collaboration, SketchUp graphics, construction documents, charettes
- **Internship with Carmel Parks & Recreation**
  - o Carmel, IN / May-August 2009
  - o Horticulture experience in: prairie systems, woodlands, wetlands, and common park plantings
  - o Research and design work with erosion control, bulb and annual programs

[TRAVEL/INTERESTS/ACTIVITIES]

- **Polyark18/World Tour 4 participant with Ball State College of Architecture and Planning**
  - o 15 credit hour, multi-disciplinary semester abroad experiencing 55+ cities in 26 countries
- **American Society of Landscape Architects, member**
- **Cycling, Snow Skiing, Hiking**

[ACHIEVEMENTS]

- **Co-founder, SCASLA Links Trust Golf Outing 2010**
  - o Foundation year for annual outing to fund a scholarship for an outstanding student of the profession
- **Treasurer, Sigma Lambda Alpha, Honorary Fraternity for Landscape Architecture Students**
- **National Society of Collegiate Scholars**
- **Frits Loonsten Memorial Scholarship recipient**
- **Academic Dean's List and Presidential Scholarship recipient every semester of collegiate education**

figure[6.3]

appendix d:

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references

[image sources]

[Figure 1.1] Source: copyright Google Earth Images

[Figure 2.1] and [Figure 3.15] Sources:
[1-3] www.wpbwaterfrontproject.com
[4] courses.umass.edu
[5] flickr.com, copyright docjwf
[6] flickr.com, copyright Amar Raavi

[Figure 4.8] Source: urbanbiofilter.org

[Figure 4.9] Source: www.wpbwaterfrontproject.com

[Figure 6.2] Source: copyright Google Earth Images

figure[6.4]